



**DR. MUHAMMAD AFZAL  
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## GENERAL

**Name:** Dr. Muhammad Afzal  
**Father's Name:** Chaudhary Abdul Aziz  
**Date of Birth:** 15 January 1949  
**Place of Birth:** Badin, Pakistan  
**Nationality:** Pakistani  
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## ACADEMIC QUALIFICATION

<i>Degree</i>	<i>Year</i>	<i>Main Subject(s)</i>	<i>University</i>
B.Sc.	1970	Microbiology, Zoology & Chemistry	University of Karachi
M.Sc.	1972	Marine Zoology	University of Karachi
M.Sc.	1974	Entomology	University of Karachi
M.Phil	1984	Physiology	Quaid-i-Azam University, Islamabad
Ph.D.	1983	Entomology	University of Karachi

## ADDITIONAL ACADEMIC QUALIFICATIONS

- Diplomas in Computer Aided Project Management; R&D Management, and Intellectual Property Rights, from Korea Industrial Technology Association (KITA, Seoul), World Intellectual Property Organisation (WIPO, Geneva) and COMSATS (Islamabad), respectively.

## PROFESSIONAL EXPERIENCE

- Biologist, Invertebrate Reference Museum, University of Karachi (1972 - 73).
- Research Officer, Department of Zoology, University of Karachi (1974-79).
- Research Associate, Quaid-i-Azam University, Islamabad (1980-82).

- Scientific Officer at National Agricultural Research Centre (PARC), from 5th January to 8th May, 1983.
- Associate Curator, Zoological Sciences Division, Pakistan Museum of Natural History, (PSF), Islamabad (from 9th May to 28th Nov., 1983).
- **Curator and Director (Incharge)**, Zoological Sciences Division, Pakistan Museum of Natural History (PSF), Islamabad (from 29th Nov, 1983 to 28th Sep, 1990).
- **Director General**, Pakistan Scientific and Technological Information Centre (PASTIC) (From 29<sup>th</sup> Sep.,1990 to 9<sup>th</sup> Feb 2003).
- **Director General**, Pakistan Museum of Natural History (From 10<sup>th</sup> Feb 2003, to 19<sup>th</sup> Feb 2004).
- **Director General**, Pakistan Scientific and Technological Information Centre (PASTIC) (From 20<sup>th</sup> February 2004 to 14 January 2009, including Ex-Pakistan leave).
- **Research Policy and Cooperation (RPC) Expert**, World Health Organization Regional Office for Eastern Mediterranean (EMRO/WHO) (From 1<sup>st</sup> Feb 2005 to 31<sup>st</sup> December 2008
- **A/Regional Advisor Research Policy and Cooperation** World Health Organization Regional Office for Eastern Mediterranean (EMRO/WHO) (From 3<sup>rd</sup> August 2006 to 31<sup>st</sup> December 2008; from 1<sup>st</sup> January 2010 to 31 January 2011 )
- **Executive Editor**, Eastern Mediterranean Health Journal (EMHJ), Regional Office for the Eastern Mediterranean, World Health Organization (EMRO/WHO) (From 1<sup>st</sup> January 2009 to 31<sup>st</sup> May 2011).
- **Consultant Joint External Evaluation (JEE)** - International Health Regulations (IHR), World Health Organization (From 15 Apr to 15 Aug 2016)
- **Consultant** (Agreement for Performance of Work with World Health Organization) for preparation of background scientific paper for the meeting on strategic framework for prevention and control of emerging and epidemic-prone diseases in Eastern Mediterranean Regional (From 10 Oct 2016 to 10 Dec 2016).
- **Consultant** (Agreement for Performance of Work with World Health Organization) for manuscripts writing and peer-reviewing (From 25 May 2020 to 31 Aug 2020).
- **Consultant** (Agreement for Performance of Work with World Health Organization) for preparation of a position paper on understanding the link

between health and social safety net programme for use as an advocacy document (From 15 Sep 2021 to 15 Dec 2021)

- **Consultant for Health Research Monitoring and Evaluation** (Freelance) (Since July 2011).
- **Advisor, Eastern Mediterranean Health Genomics and Biotechnology Network**, Pasteur Institute of Iran (Since 2009)

#### **ADDITIONAL PROFESSIONAL EXPERIENCE**

- **Director**, Technology Information Promotion system (UNDP / DEVNET) (Additional charge from 1<sup>st</sup> Nov., 1995 to 9<sup>th</sup> Feb 2003).

#### **IMPORTANT MEETINGS / CONFERENCES / SEMINARS / WORKSHOPS / TRAININGS (Facilitator)**

<b>DESCRIPTION</b>	<b>PERIOD</b>	<b>ORGANISING AGENCY</b>
➤ workshop on Modern computing and statistical tools in genomics and biotechnology for conducting research based on data collected from international domains	28-30 October 2019	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Fourth Dr. A. Q. Khan Winter School on “Tools and Techniques in Biotechnology”	13-16 December, 2018	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Fourteenth Biennial Conference of Pakistan Society for Biochemistry and Molecular Biology (PSBMB): “Molecular Biosciences: Research And Innovations”.	9-12 December, 2018	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Fifth-ICLS-KIBGE Conference on “Responsible Conduct of Science: Ethical Concerns in Medical and Pharmaceutical Practice	20-22 May, 2017	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi

and Research”.		
➤ Second Dr. A. Q. Khan Winter School on “Modern Tools & Techniques in Health & Disease”	21-23 December, 2016	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Meeting of IHR Joint External Evaluation (JEE) Mission, Pakistan	27 April, 2016	Ministry of National Health Services, Regulation and Coordination (NHSRC), Pakistan, and World Health Organization
➤ Biostatistics Tools in Genomics & Bioinformatics	25-27 March, 2016	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ 1st International Conference on Life Sciences: Emerging Trends in Biological Sciences and Genomics	28-30 December, 2015	M.A.H. Qadri Biological Research Center, University of Karachi & Dr. A.Q. Khan Institute of Biotechnology & Genetic Engineering, University of Karachi, Karachi-7S27O, PAKISTAN
➤ Dr. A. Q. Khan Winter School on “Modern Tools and Techniques in Health & Disease”	25-27 December, 2015	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ KIBGE Workshop on “Planning, Execution and Successful Accomplishment of Research Degrees”	24-26 April, 2014	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ KIBGE Workshop on “The Use of Excel Macros and Microsoft Tools for Data Handling and Performing Complex Data Analysis, Involving a Wide Range of Software”	18-19 April, 2014	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Workshop on Genome-wide Association Studies (GWAS)	28-29 October 2013	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi
➤ Workshop on GMP	2-4 March 2013	Eastern Mediterranean Health

and GLP practices for health related industries		Genomics & Biotechnology Network, Pasteur Institute of Iran (Tehran).
➤ Project Formulation Workshop	17-18 January, 2013	Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi; and Pakistan Science Foundation, Islamabad.
➤ KIBGE-Workshop on Biostatistical Tools in Genomics & Bioinformatics	19-22 September 2012	Khan Institute of Biotechnology & Genetic Engineering (KIBGE), University of Karachi.
➤ Eastern Mediterranean Health Genomics and Biotechnology Network (EMGEN): Steering Committee Election	20-21 December 2010	Eastern Mediterranean Health Genomics & Biotechnology Network, Pasteur Institute of Iran (Tehran).
➤ African Network for Drugs and Diagnostics Innovation: 3 <sup>rd</sup> Stakeholders Meeting and High Level Forum	11-13 October 2010	UNECA, AfDB, TFR/WHO, UNON, Nairobi, Kenya
➤ 8 <sup>th</sup> Meeting of the African Network for Drugs and Diagnostics Innovation (ANDI) Task Force	26-27 August 2010	UNECA, AfDB, TFR/WHO, UNON, Nairobi, Kenya
➤ 7 <sup>th</sup> Meeting of the African Network for Drugs and Diagnostics Innovation (ANDI) Task Force	1-2 July 2010	UNECA, AfDB, TFR/WHO, Geneva, Switzerland
➤ 53 <sup>rd</sup> Session of the Global Advisory Committee on Health Research (ACHR)	3-5 May 2010	WHO, Geneva
➤ Biovision Alexandria 2008 (Conference),	11-15 April 2010	Bibliotheca Alexandrina, Alexandria, Egypt

➤ 3 <sup>rd</sup> Pan Arab Human Genetics Conference	13-14 March 2010	Centre for Arab Genomic Studies (CAGS), Dubai, UAE
➤ 5 <sup>th</sup> Meeting of the African Network for Drugs and Diagnostics Innovation (ANDI) Task Force	25-26 January 2010	UNECA, AfDB, TDR/WHO, Sharm-el-Sheikh, Egypt
➤ Forum 2009: "Innovating for the health of all"	16-20 November 2009	WHO, Global Forum for Health Research, World Bank, etc. Havana, Cuba
➤ Meeting of Interested Parties in health ethics and bioethics in the Arab World and EM Member States.	15-16 April 2009	UNESCO, Cairo Office; ISESCO; WHO/EMRO; WHO/HQ; TDR; AKU/Pakistan; Cornell University/Qatar; and Johns Hopkins University/USA, Rabat, Morocco
➤ First meeting of the International Biotechnology Advisory Committee	12-14 April 2009	WHO and ISESCO, Rabat, Morocco
➤ Regional Biosecurity Workshop	23-24 February, 2009	Bibliotheca Alexandrina (BA) and the Center for International and Security Studies at Maryland (CISSM), Alexandria, Egypt.
➤ 2008 Global Ministerial Forum on Research for Health	15-21 November, 2008	WHO, Global Forum for Health Research, World Bank, etc., Bamako, Mali.
➤ Biovision Alexandria 2008 (Conference),	11-16 April 2008	Bibliotheca Alexandrina, Alexandria, Egypt
➤ 49 <sup>th</sup> Session of the Global Advisory Committee on Health Research (ACHR)	27-29 March 2008	WHO, Geneva
➤ Ministerial Preparatory Meeting for the 2008 Global Ministerial Forum on Research for Health	15-20 December, 2007	WHO and Government, Islamic Republic of Iran, Tehran.
➤ Health Research Priority Setting	9-10 Dec 2007,	Executive Board of the Health Ministers, GCC, with MOH, KSA,

Workshop		WHO/EMRO, CHNRI and GFHR., Riyadh, Saudi Arabia
➤ Workshop on Research Methodology and Proposal Development for Communicable Diseases	28 Oct to 2 Nov 2007	EMRO/WHO and TDR, Cairo, Egypt
➤ Retreat of the Subgroup of the Global Steering Committee on WHO Collaborating Centres, Geneva,	15-16 Oct 2007	WHO, Geneva
➤ Regional Consultative Meeting on the Intergovernmental Working Group on Public Health, Innovation and Intellectual Property Rights	15-16 August 2007	EMRO/WHO, Cairo, Egypt
➤ 47 <sup>th</sup> Session of the Global Advisory Committee on Health Research (ACHR)	4-6 Jun 2007	WHO, Geneva
➤ Capacity Development Workshop on Health System Development for Regional Country Office Staff	20 - 24 MAY 2007	EMRO, WHO, Alexandria, Egypt
➤ Global Consultation on Addressing Ethical Issues in Pandemic Influenza Planning	24-25 Oct. 2006	WHO, Geneva
➤ 24 <sup>th</sup> Annual Summer Meeting of the Egyptian Society of Surgeons	6-8 September 2006	Egyptian Society of Surgeons, Alexandria, Egypt
➤ Eastern Mediterranean	2-4 May 2006	EMRO/WHO and Eastern Mediterranean Health Genomics &



Consultation for Establishing a Regional Biotechnology Network on Health Genomics and Biotechnology: Meeting of the EMHGBN Ad Hoc Committee		Biotechnology Network, Muscat, Oman.
➤ Eastern Mediterranean Consultation for Establishing a Regional Biotechnology Network on Health Genomics and Biotechnology: Meeting of the EMHGBN Ad Hoc Committee	18-20 February 2006	EMRO/WHO and Eastern Mediterranean Health Genomics & Biotechnology Network, Pasteur Institute of Iran (Tehran).
➤ Advanced Regional Training Programme in Bioinformatics	10-14 December 2005	EMRO/WHO and Sultan Qaboos University in Muscat, Oman
➤ Regional Workshop on Qualitative Research Methodology for Health research.	2-24 November, 2005	EMRO/WHO and The American University, Cairo, Egypt
➤ Grant Proposal Writing in Health Systems Research	28 July-1 August-2005	EMRO/WHO, Sana'a Yemen
➤ International Workshop on Bioinformatics	22-25 April, 2003	COMSTECH-PTCL Frontier Technologies Centre, Islamabad.
➤ Eighth meeting of the Governing Board of the SAARC Documentation Centre, (SDC), New Delhi, India.	18-19 November, 2002	SAARC, NISCAIR, New Delhi
➤ Workshop on	25-27 January,	BANSDOC, Dhaka, Bangladesh.

Information Infrastructure in SAARC Region	2000	
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### ORGANIZATION OF POLICY MEETINGS/TRAINING PROGRAMMES / WORKSHOPS

Year	Title	From	To	Sponsor
2010	25 <sup>th</sup> Session of the Eastern Mediterranean Advisory Committee for Health Research	18 Oct	19 Oct	EMRO/WHO, Cairo, Egypt
2009	First meeting of the new Editorial Board of the Eastern Mediterranean Health Journal	14 Sep	14 Sep	EMRO/WHO, Cairo, Egypt
2008	23 <sup>rd</sup> Session of the Eastern Mediterranean Advisory Committee for Health Research	24 Mar	25 Mar	EMRO/WHO, Cairo, Egypt
2008	Expert meeting on ethical and legal issues of human embryo research	12 Feb	14 Feb	EMRO/WHO, HNESCO, ISESCO Cairo, Egypt
2007	Regional workshop on science and health Journalism	6 Dec	10 Dec	EMRO/WHO, Cairo
2007	Workshop on research methodology and proposal development for communicable disease	28 Oct	2 Nov	EMRO/WHO, Cairo
2007	Regional Workshop on Qualitative Research Methodology for Health Researchers	29 Oct	30 Oct	EMRO/WHO, Cairo, Egypt
2007	Experts Meeting for Priority setting for the Special Grant for Research in Priority Areas of Public Health	15 Jul	17 Jul	EMRO/WHO, Cairo, Egypt
2007	Training of trainers on writing a journal article and getting it published	18 Jun	20 Jun	EMRO/WHO, Cairo, Egypt

2007	First Regional Meeting of National Bioethics Committees	3 May	5 May	EMRO/WHO, ISSESCO, Cairo, Egypt
2007	Training workshop to develop research conveners	-	-	EMRO/WHO, Cairo, Egypt
2007	Four Workshops on Ethics of Biomedical Research & Establishing Research Ethics Review Committees	-	-	EMRO/WHO, University of Maryland(USA), Sudan, Jordan, Saudi Arabia, Oman
2006	22 <sup>nd</sup> Session of the Eastern Mediterranean Advisory Committee for Health Research	28 Oct	29 Oct	EMRO/WHO, Cairo, Egypt
2006	Workshop on Research to Policy and Practice	12 Aug	13 Aug	EMRO/WHO, Aga Khan University, Karachi, Pakistan
2006	Training programme for the Franco-phonic Islamic Countries on Establishing National Bioethics Committee			EMRO/WHO ,ISESCO, Rabat, Morocco
2006	Project Initiation Workshop on “Exploring Demand for Health Research by National Policy-makers: an empirical approach”			EMRO/WHO, Global Forum for Health Research, and John Hopkins University (USA), Cairo, Egypt
2006	Regional Workshop on Molecular Epidemiology and Scientific Grant Proposal Writing			EMRO/WHO , National Hepatology and Tropical Medicine Research Institute, Cairo, Egypt
2006	Regional Workshop on Situation Analysis of Health Research in the Gulf Cooperation Council States (GCC) and some of the Eastern Mediterranean Region Countries			EMRO/WHO, COHRED, GCC, Muscat, Oman
2006	Grant Proposal Writing in Health Systems Research			EMRO/WHO, Ministry of Health, Syria

2006	Eastern Mediterranean Consultation for Establishing a Regional Biotechnology Network on Health Genomics and Biotechnology	18 Feb	20 Feb	EMHGBN, Tehran, Iran
2005	Joint WHO/ SQU Advanced Regional Training Programme in Bioinformatics	10 Dec	14 Dec	EMRO/WHO & SQU, Muscat
2005	Regional Workshop on Qualitative Research Methodology for Health research.	20 Nov	24 Nov	EMRO/WHO & AU, Cairo
2005	Grant Proposal Writing in Health Systems Research	28 Jul-	1 Aug	EMRO/WHO, Sana'a Yemen
2005	Workshop on Health Systems Research in Sana'a, Yemen	28 Jul	1 Aug	EMRO/WHO
2005	21 <sup>st</sup> Session of the Eastern Mediterranean Advisory Committee for Health Research	13 Mar	15 Mar	EMRO/WHO, Cairo, Egypt

## KNOWLEDGE OF LANGUAGES

<b>LANGUAGE</b>	<b>READ</b>	<b>WRITE</b>	<b>SPEAK</b>
English	excellent	excellent	excellent
French	good	good	fair
Urdu	excellent	excellent	excellent
Punjabi	excellent	excellent	excellent
Sindhi	good	fair	excellent

## AWARDS

- Research Associate Fellowship at Quaid-i-Azam University from 1980-82.
- Fellowship in the field of Natural History in Natural History Museum of France, from 6th August, 1989 to 5th May, 1990.

## IMPORTANT FELLOWSHIPS / MEMBERSHIPS (PRESENT OR HELD)

<b>SOCIETY / COMMITTEE</b>	
Zoological Society of Pakistan	Life fellow
Entomological Society of Karachi	Fellow
Fisheries Society of Pakistan	Fellow
Scientific Society of Pakistan.	Fellow
Governing Board of SAARC Documentation Centre.	Member
Internal Consultative Group for WHO Health Research Strategy	Member
Technical Review Committee (Regional Committee) WHO's Regional Office for the Eastern Mediterranean	Member
Publications Committee, WHO's Regional Office for the Eastern Mediterranean	Member

## ADMINISTRATION / MONITORING / EVALUATION OF RESEARCH PROJECTS

### Public Health Research

<b>Year</b>	<b>Country</b>	<b>Title</b>	<b>Institution</b>	<b>Principal Investigator</b>
2006	Egypt	Psychosocial factors associated with drug abuse among youth in Egypt	Faculty of Medicine, Cairo University	Emad Hamdi
2006	Iran	Development of a record linkage protocol for use in health system researches	The Cancer Research Centre	Alireza Jarrahi
2006	Jordan	Mental and psychological health of the university students in Jordan	University of Jordan	Ayman Mansour
2006	Lebanon	Improving rural health care in Lebanon: An Experimental study	American University of Beirut	Kassem Kassak
2006	Lebanon	Towards a better understanding of the magnitude and predictors of nurse migration out of Lebanon	American University of Beirut	Fadi El Jardali

2006	Pakistan	Obstetric fistula-more than an obstetric problem	Jinnah Postgraduate medical centre Karachi	Shereen Bhutta
2006	Pakistan	Knowledge, attitudes and perception of water pipe smoking (shisha) among adolescents aged 14-16 years	Ziauddin Medical University	Qudsia Fasih
2006	Pakistan	A pilot study of service establishment for early diagnosis and prompt treatment of women with post natal depression in a tertiary care facility of Rawalpindi	Institute of Psychiatry, Rawalpindi general hospital	Fareed Minhas
2006	Pakistan	Assessing the prevalence of postpartum depression among Pakistani urban and rural women	Aga Khan Health service	Laila Khalfan
2006	Sudan	Awareness, attitude and practice of risky health behaviors among Sudanese university students	University of Gezira	Samira Abdel Rahman
2006	Sudan	The teaching of Major Endemic Diseases in Sudanese Medical Schools: A critical look	University of Gezira	Samira Abdel Rahman
2006	Syria	The effect of supporting program for mothers caring for mentally disabled children on their psychological health status: A study in Damascus and rural Damascus	Faculty of medicine	Mayada Kharouf
2006	Yemen	Environmental Lead and its impacts on children's health in Sana'a city, Republic of Yemen, Pilot Study	Sana'a University	Munira Dughish

2007	Egypt	Medical Education Reform Initiative for Capacity Building of Community-Oriented Physicians: an Evaluation Study	Faculty of Medicine, Cairo University	Madiha Abdel Razek
2007	Iran	Risk factors associated with injection initiation among youth drug users who are admitted to the three Drug Treatment Centers in Tehran, Iran	Faculty of Nursing & Midwifery, Iran University of Medical Sciences	Soghra Nikpour
2007	Iran	The desirability, feasibility and impact of implementing community based health insurance in Iran's areas	University of Social Welfare and Rehabilitation	Mehdi Russel
2007	Iran	The Impact of a Theory-based Health Education on Health Locus of Control and Lifestyle Self Efficacy among Women attending Premarital Clinic	Faculty of Nursing & Midwifery, Iran University of Medical Sciences	Farideh Bastani
2007	Jordan	The Effect of Folic Acid Fortification in the Prevention of Neural Tube Defects: Study from Northern Jordan	Jordan University of Science and Technology, National Center For Diabetes Endocrinology and Genetics and Princess Rahmah Hospital	Azhar Daoud
2007	Lebanon	Building the evidence base for physician workforce health policy: a survey of the characteristics of Lebanese physicians	American University of Beirut	Beatrice Khater-Menassa
2007	Lebanon	Developing Country specific retention strategies for Nurses in Lebanon	AUB	Fadi El Jaradli

2007	Morocco	Improvement of the management information system of the health services by the use of the geographical information system at Khemisset provincial, Morocco	INAS (Institut National d'Administration sanitaire)	Professor Maaroufi abderrahmane
2007	Pakistan	Training of non physician practitioner to identify and refer diabetic patients	Fatma Memorial Hospital	Ahmed Khan
2007	Palestine	Development of workload measurement in governmental medical laboratories in Gaza Strip	MOH	Reem AbuShomar
2007	Palestine	Impact Of Current Economic Situation On Health Seeking Behavior & Ability To Pay In Gaza Strip	University of Palestine international	Samir Kuhail
2007	Palestine	The determination of pesticide pollution in ground water in Gaza Strip and its impact on health”	Al Azhar University Gaza/ Water Research Center	Mazen Hamada
2007	Saudi Arabia	Effectiveness of Mental Health Care Provided through Family Physicians in Taif Region, Saudi Arabia	Al-Hada and Taif Armed Forces Hospitals	Abdul Salam Al Shehri
2007	Sudan	Effect of quality on demand for curative care from governmental health facilities- Khartoum State- 2007	Ministry of Health	Muna Hassan Mustafa
2008	Iran	Participatory Assessment of Policy Actors in community-based programs of drug misuse	Teheran University of Medical Sciences	Azita Kheiltash
2008	Iran	Determinants of oral health and evaluation of an oral health promotion intervention among school children	Medical University of Isfahan	Zahra SAIED-MOALLEMI



2008	Iran	A multi-center assessment of medical research-based knowledge translation in eastern Mediterranean region universities	Teheran University of Medical Sciences	R. Majdzadeh
2008	Iran	Prevalence and Risk factors of domestic violence by husbands against wives in Teheran, Iran 2008	Iran University of Medical Sciences	Mahvash Danesh Kojuri
2008	Jordan	The mental and psychosocial wellbeing of Abused Women in Jordan: an exploration and intervention	University of Jordan	Ayman Mansour
2008	Lebanon	Dietary exposure of an adult rural population to pesticide residues in Lebanon: A total diet study approach	American University of Beirut	Lara Nasreddine
2008	Lebanon	Patient safety culture assessment in Lebanese Hospitals: Developing action oriented strategies	American University of Beirut	Fadi El Jardali
2008	Lebanon	Health Seeking Behavior and Satisfaction with Health Services in Four Rural Towns in Nabatieh Governorate – Lebanon	Islamic University of Lebanon	Aziza Khalidi
2008	Lebanon	Intervention to promote healthy eating and physical activity in Lebanese schoolchildren	American University of Beirut	Nahla Hwalla
2008	Lebanon	Women's satisfaction with screening for domestic violence	KAFA (Violence and Exploitation)	Jinan Usta
2008	Lebanon	Medical education policy makers in Lebanon: their awareness, knowledge, and use of physician migration research evidence	University Of Balamand, Faculty of Medicine & Medical Sciences	Claude Afifi

2008	Morocco	Effectiveness of Maternity Waiting Homes to access skilled attendance at birth and community empowerment	Institut National d'Administration Sanitaire	Mina Abaacrouche
2008	Oman	Prevalence of Diabetes mellitus type 2 (T2DM) impaired glucose tolerance (IGT) and impaired fasting glucose (IFG) amongst over weight and obese children in the 11-18 years of age group in Oman	Oman Medical college	Saleh Al Khusaiby
2008	Pakistan	Implementation of WHO Multi-Country Study on Women's Health and Violence Against Women in Pakistan	Aga Khan University	Sadia Mahmud
2008	Palestine	Health Care Seeking behaviors, health care services utilization and providers' choice in the Gaza Strip.	The Palestinian Medical Relief Society.	Majdi Ashour
2008	Sudan	Biosfety precautions in Khartoum state diagnostic laboratories	Directorate of laboratories and medical researches	Adel El Duma
2008	Sudan	Assessment of beneficiaries satisfaction with medical care in the health centers in Khartoum state 2008	Khartoum State Ministry of Health	Abdelgadir Ali Bashir
2008	Tunisia	Study medico-social on the health and the lifestyle of elderly ( ≥ 65 years) alive in their homes in the governorate of Monastir (Tunisia)	Association de protection des personnes agees de Monastir	Sonia Hamami
2008	Yemen	Assesment the extent of counterfeit and substandard anti-infective drugs in Yemen	Ministry of Health	Khalid Al-Sunaidar

## Research for health in biotechnology and genomics

Year	Country	Title	Institution	Principal Investigator
2004-2005	Egypt	The role of selected gene mutations in the pathogenesis of congenital heart disease in Egypt	National Hepatology and Tropical Medicine Research Institute, Cairo	Hala Hamza
2004-2005	Iran	Preparation of diagnostic kit using <i>L. infantum</i> C-terminal extension of type I cysteine proteinase for early detection of human visceral leishmaniasis	Pasteur Institute of Iran, Tehran; and Pasteur Institute of Morocco	Sima Rafati
2004-2005	Iran	Determination of toxicity of Iranian Helicobacter pylori strains: From Gene to Protein to Function; Application to Diagnostics and Patient Screening	Pasteur Institute of Iran, Tehran	Marjan Mohammadi
2004-2005	Iran	Proteomics Analysis of Immunologic Infertility: Detection of Immunodominant sperm surface Antigens in Iranian Infertile Patients	Avesina Research Centre, Tehran	Mahmood Chamankhan
2004-2005	Iran	Molecular diagnosis of vancomycin resistant genes in <i>Enterococci</i> and <i>Staphylococcus aureus</i> strains isolated in municipal and hospital wastewater in Iran	Pasteur Institute of Iran, Tehran	Mohammad Reza Pourshafie
2004-2005	Pakistan	Studies on the IL-8 levels and mutations in E2 and NS5A genes of Hepatitis C virus in resistance to antiviral therapy	National Centre of Excellence in Molecular Biology	Sheikh Riazuddin

2004-2005	Pakistan	Application of the biotransformation techniques to produce value added compounds using plant cell cultures	International Centre for Chemical Sciences, HEG RIC, Karachi	Saifullah Khan
2004-2005	Syria	Diagnosis and genotyping HCV RNA in Syria by applying molecular biology techniques	MOH/PHLs/Molecular Biology Lab, Damascus	Mouna alkhatab
2004-2005	Egypt	Production of human recombinant anti-tetanus Fab using high throughput of phage display and <i>Pichia pastoris</i>	Genetic Engineering and Biotechnology Research Institute(GEBRI), Alexandria	El-Rashdy M. Redwan
2004-2005	Egypt	Bioinformatics in tissue Engineering Science and Technology	Tissue Engineering Laboratories, Osteoporosis Clinic, Faculty of Dentistry, Alexandria, Egypt	Mona K. Marei
2004-2005	Iran	Improving human recombinant calcitonin Expression level in Transgenic Potato Tuber by using Patatin class I Promoter	Iranian Research Organization for Science and Technology, Tehran	Hamideh Ofoghi
2004-2005	Iran	Production of pharmaceutical proteins in semi-desert plants	National Research Centre for Genetic Engineering and Biotechnology, Teheran	Haleh Hashemi Sohi
2004-2005	Jordan	Invasive <i>Streptococcus pneumoniae</i> serotypes: genotypic and phenotypic characteristics in North Jordan	Department of Biotechnology and Genetic Engineering, Jordan University of Science and Technology	Wali A. Hayajneh

2004-2005	Oman	Social, cultural, legal and ethical issues related to Gene in a developing Country	Sultan Qaboos Univeristy College of Medicine & Health Sciences	Zakiya Al Lamki
2004-2005	Tunisia	Green Fluorescent Recombination Antibody: novel in vitro tools for detecting the rabies virus antigen	Pasteur Institute of Tunisia, Tunis	Mohamed Mousli
2004-2005	Tunisia	Integrated biomedical, bioinformatics, genomic and molecular biology approaches for the development of novel tools for the diagnosis of leishmaniases in humans.	Pasteur Institute of Tunisia, Tunis	Souha Abderrazaki
2006-2007	Iran	Collaborative Research: Genome Analysis of <i>Plasmodium falciparum</i> for Antimalarial Drug Monitoring in Baluchistan Iran	Pasteur Institute of Iran	Sedigheh Zakeri
2006-2007	Iran	Collaborative Research: Genome Analysis of Plasmodium Falciparum for Antimalarial Drug Monitoring in Baluchistan Iran	Zahedan University of Medical Sciences	Masoud Salehi
2006-2007	Pakistan	Studies on the Genetic & Molecular Basis of hearing and Vision Impairment	Centre of Excellence in Molecular Biology	Shaheen N. Khan
2006-2007	Syria	Genetic basis of Hearing Impairment in Syrian Population	Atomic Energy Commission (AECS)	Walid Al Ashkar
2006-2007	Iran	Genetic Basis of Vision Impairment (Glaucoma) in Iran	National Institute for Genetic Engineering & Biotechnology	M. Hussain Sanati

2006-2007	Morocco	Collaborative Research on: The Assessment of Epidermal Growth Factor Receptor (EGFR) Abnormalities as a Prognostic Marker in Cervical Cancer	Centre Naational de L'Energie des Sciences et des Techniques Nucleaires (CNESTEN)	Mohammed Attaleb
2006-2007	Morocco	Collaborative Research on: The Assessment of Epidermal Growth Factor Receptor (EGFR) Abnormalities as a Prognostic Marker in Cervical Cancer	Pasteur Institut of Morocco	Meriem Khayatti
2006-2007	Lebanon	Collaborative Research on the Anti-inflammatory and Anti-cancer Effects of Gallotannin in Human Colon Cancer Cells: Anti-cancer Effects of Gallotannin	American University of Beirut	Hala Ghali-Mohtasib
2006-2007	Lebanon	Collaborative Research on the Anti-inflammatory and Anti-cancer Effects of Gallotannin in Human Colon Cancer Cells: Anti-cancer Effects of Gallotannin	Lebanese University	Raghida Abou Merhi
2006-2007	Iran	Collaborating Research: Developing a Molecular Kit for Monitoring Insecticide Resistance in Four Major Malaria Vectors of Eastern Mediterranean Region (EMR)	Pasteur Institute of Iran	Navid Dinparast Djadid
2006-2007	Pakistan	Collaborating Research: Developing a Molecular Kit for Monitoring Insecticide Resistance in Four Major Malaria Vectors of Eastern Mediterranean Regions (EMR)	Government Degree Girls College 11/B, North Karachi	Syeda Azra Qamar

2006-2007	Morocco	Collaborative Research on Tuberculosis in Morocco: Evaluation of the Performance of Antigenic Epitopic Peptides for the Development of a New Test Allowing the Differential Diagnosis Between the Active Tuberculosis and the Latent Tuberculosis Infection	National Institute of 'Hygiene	Prof Rajae El Aouad
2006-2007	Morocco	Collaborative research on tuberculosis in Morocco : Diagnosis of the active tuberculosis when fast Mycobacterium tuberculosis identification is negative	Department of Tuberculosis & Lung Diseases, Faculty of Medicine of Rabat	Prof Ghali Iraqi
2006-2007	Pakistan	Collaborative Research on Structural and Mechanistic Studies of Merozoite Surface Protein-1 (MSP-1) for Preparation of Recombinant MSP-1 Malaria Vaccine- Experimental Aspects	University of the Punjab	Prof Abdul Rauf Shakoori
2006-2007	Pakistan	Collaborative Research on Structural and Mechanistic Studies of Merozoite Surface Protein-1 (MSP-1) for Preparation of Recombinant MSP-1 Malaria Vaccine- Computational Studies	Institute of Molecular Sciences & Bioinformatics	Prof Nasiruddin
2006-2007	Iran	Collaborative Research on Structural and Mechanistic Studies of Merozoite Surface Protein-1 (MSP-1) for Preparation of Recombinant MSP-1 Malaria Vaccine-Study on C-terminus 19 kDa Fragment of MSP1	Pasteur Institute of Iran	Zahra Zamani

2006-2007	Egypt	Use of cDNA microarray for discovery of prognostic Markers for Squamous Cell Carcinoma of the Bladder	National Hepatology and Tropical Medicine Research Institute (NH-TMRI)	Mohamed Abdel Hamid
2006-2007	Egypt	Use of Immunohistochemistry to validate cDNA Microarray Results for prognostic markers of Squamous Cell Carcinoma of the Bladder	National Cancer Institute (NCI), Cairo University	Hussain Khaled
2008-2009	Morocco	The assesment of Human Papillomavirus intratyic Variants ditribution in normal cytology, itraepithelial lesions, and cervical cancer in a Moroccan Population	CNESTEN	Mohammed Attaleb
2008-2009	Morocco	The assessment of Human Papillomavirus intratyic Variants distribution in normal cytology, itraepithelial lesions, and cervical cancer in a Moroccan Population	Pasteur Institute	Meriem Khayatti
2008-2009	Iran	Collaborative Research of Investigation of non-communicable diseases in post-genomics era	Pasteur Institute of Iran	Soroush Sardari
2008-2009	Morocco	Collaborative Research on Investigation of non-communicable diseases in post-genomics	Pasteur Institute of Morocco	Abdelhamid Barakat
2008-2009	Tunisia	Collaborative Research of Investigation of non-communicable diseases in post-genomics era	Institut Pasteur de Tunis	Sonia Abdel Hak



2008-2009	Lebanon	Collaborative Research on the molecular mechanisms of the Anti-Cancer and Anti-inflammatory effects of Gallotannin: Anti-inflammatory effects of Gallotannin	Lebanese University	Raghida Abour Mrhi
2008-2009	Lebanon	Collaborative Research on the molecular mechanisms of the Anti-Cancer and Anti-inflammatory effects of Gallotannin: Anti-inflammatory effects of Gallotannin	AUB	Hala Muhtasib
2008-2009	Egypt	Microarray and Q-PCR analysis of the Expression of Xenobiotic-Metabolizing Enzymes in Hepatocellular Carcinoma	National Hepatology and Tropical Medicine Research Institute (NH-TMRI)	Mohamed Abdel Hamid
2008-2009	Egypt	Expression of Xenobiotic-Metabolizing Enzymes in Hepatocellular Carcinoma using Immunohistochemistry	National Cancer Institute	Hussein Khaled
2008-2009	Iran	Collaborative Research on Genetic variants of different stage specific antigen proteins can provide diverse glycosylation substrates acting as antigenicity determinant for vaccine against malaria- Glycosylation studies	PASTEUR INSTITUTE OF IRAN	Zahra Zamani

2008-2009	Pakistan	Collaborative Research on Genetic variants of different stage specific antigen proteins can provide diverse glycosylation substrates acting as antigenicity determinant for vaccine against malaria- Cloning and expression studies	UNIVERSITY OF THE PUNJAB	Abdul Raouf Shakouri
2008-2009	Pakistan	Collaborative Research on Genetic variants of different stage specific antigen proteins can provide diverse glycosylation substrates acting as antigenicity determinant for vaccine against malaria- Computational Studies	INSTITUTE OF MOLECULAR SCIENCES & BIOINFORMATICS	Prof Nasr-U-Din
2008-2009	Pakistan	Mutator <i>M.tuberculosis</i> in Tehran and Rawalpindi; A Comparative Study on Fingerprinting, Mutator Genes, and Antibiotic Resistance Genes of the Isolates	University of Arid Agriculture Rawalpindi	Azra Khanoum
2008-2009	Iran	Mutator <i>M. tuberculosis</i> in Tehran and Rawalpindi; A Comparative Study on Fingerprinting, Mutator Genes, and Antibiotic Resistance Genes of the Isolates	Pasteur Institute of Iran	Mina Ebrahimi-Rad

## EXPEDITIONS

**Operation Raleigh - Pakistan Expedition, 1987:** Organized by Adventure Foundation of Pakistan and Pakistan Science Foundation.

**Operation Raleigh - Pakistan Expedition 1987:** Organized by Adventure Foundation of Pakistan and Pakistan Science Foundation.

**Expedition of the "Zoogeographical Studies on the Medically Important Diptera in Southwest Asia" (1987-1989):** Organized by the Ministry of Education, Science and Culture, the Government of Japan (KAMIMURA K. General account of the " Zoogeographical Studies on the Medically Important Diptera in Southwest Asia". Medical Entomology and Zoology. 1989 Dec 28;40(supplement):1-5).

## **EDITORIAL EXPERIENCE**

### ***Editor:***

- Health Biotechnology and Biopharma Journal, Pasteur Institute of Iran, Tehran, Iran.
- Pakistan Journal of Zoology, Lahore, Pakistan.
- Pakistan Journal of Agricultural Research, Islamabad, Pakistan.
- International Journal of Biology and Biotechnology, Faisalabad, Pakistan

### ***Executive Editor:***

- Eastern Mediterranean Health Journal (EMHJ), Regional Office for the Eastern Mediterranean, World Health Organization (From 1<sup>st</sup> January 2009 to 31<sup>st</sup> May 2011).

### ***Chief Editor:***

- Natural History News: A publication of Pakistan Museum of Natural History (from 1985 to 1989)
- Union Catalogue of Pakistani Scientific and Technological Libraries: A publication of Pakistan Scientific and Technological Information Centre / Pakistan Science Foundation ((From 1990 to 2003).
- Chief Editor of following Publications of Technological Information Promotion system (TIPS/UNDP) (from 1996 to 2002):

i. White Meat Journal (quarterly): Covering Poultry and Fisheries Sectors

ii. Annual Trade and Technology Directory: Published in English and National Language to cover selected Trade Offers, Technological Information and Business Events from TIPS/UNDP member countries.

### iii. **WEEKLY BULLETINS**

1. Energy
2. Electronics & Computers
3. Business Opportunities

4. Agriculture
5. Food Processing
6. Pharmaceuticals
7. Machinery
8. Building Materials
9. Chemicals

**iv. FORTNIGHTLY BULLETINS**

1. Textiles
2. Fisheries
3. Bio-Technology
4. Packaging
5. Mining

**Experience of Computer and Informatics**

- Practical experience of SPSS, STATA, STATISTICA, MSTATC, MS Excel (including Macros development), MS Word, MS Powerpoint, MS Access, MS Visual Basic, Corel Draw, Adobe Photoshop.

**Experience of Network Management: As Director of Technological Information Promotion system (TIPS/UNDP)**

(From 1<sup>st</sup> Nov., 1995 to 9<sup>th</sup> Feb 2003,).

A specialized network that provided supported information to business enterprises. Tips supplied scores of information-based services in the areas of technology, product development, finance, economics, technical and quality regulations, environmentally safe production and manufacturing and environmental protection.

**EXAMINER OF M.Phil./ Ph.D. DISSERTATIONS:**

***M.Phil. Theses, Quaid-i-Azam University, Islamabad***

No.	Date	Name of Student	Title
1	24-7-1994	Syed Lal Shah	Effect of Selected Heavy Metals on Blood parameters of <i>Cyprinion watsoni</i>
2	10-11-1994	Farhat Jabeen	Epidemiology and Genetics of Cardiac Diseases in a Hospital Population.
3	18-10-1994	Salma Sultana	Genetic and epidemiological studies of cancer in Hospital Population
4	3-11-1994	Tayyaba Sultana	Ultra structural studies on Human Cancerous Tissues.
5	12-10-1994	Tahira Khamum	Cytogenetical and Ultra structural Effects of Gamma Rays on <i>Pisum</i>

			<i>sativum</i> L.
6	19-1-1995	Ikhtiaruddin Khattak	Effect of Malathion on Blood parameters of <i>Cyprinion watsomi</i> .
7	28-1-1996	Asmat Ullah	A comparative Study of the pineal in some Common Snakes of Pakistan
8	15-2-1996	Nasir Ghani	Effect of mercury and led on Blood parameters of <i>Cyprinion watsoni</i>
9	4-3-1996	Farzana Altaf	Effect of polyhydroxy Alcohol and sodium Glutamate on validity of freeze-dried Lactic Acid Bacteria.
10	1-8-1996	Zahid Hussain	Analysis of liver Lipids in some fresh-water fishes.
11	11-11-1996	Ali Abbas Qazilbash	Serosurvey of Human Brucellosis in the Rawalpindi Islamabad Area.
12	14-11-1996	Ghulam Nabi	Effect of some Heavy metals on the morphology of Gill and skin epithelium in <i>Cyprinion watsoni</i>
13	11-1-1997	Farzana Munir	Effect of temperature on Blood parameters of a Freshwater Fish, <i>Cyprinion watsoni</i> .
14	6-2-1997	M. Akram	Experimental studies on effect of Cadmium and Zinc on selected Tissues of the freshwater cyprimid Fish <i>Barilis vagra</i> .
15	28-2-1997	Fatima Sadia	Morphological studies of the pineal organ in selected species of local Non-Poisonous snakes.
16	27-2-1999	Dr Zahid Aleem Malik	Thyrototoxic Heart Diseases.
17	17-4-1999	Naushaba Anjum	Cloning and Expression of Hepatitis C virus ( H C V ) Core protein in Bacteria.
18	11-8-1999	Shazia Batool	Metalaxyl sensitivity of <i>Phytopathora- infestans</i> , the cause of late blight of potato.
19	11-9-1999	Asma Anwar	Prevalence of vitamin A deficiency in a selected Rural Area of Islamabad.
20	11-3-2000	M. Ilyas	Effect of polychlorinated Biphenyl (PCB) on the ovary of a freshwater cyprinid fish.
21	6-3-2000	Rifat Zia	Effect of Insecticides on Thyroid Function in Rats.
22	6-3-2000	Lubna Shar	Insecticide-Induced Changes in the secretary Activity of thyroid gland in Rats.
23	13-7-2000	Rana Junaid	Diabetes mellitus its cutaneous

			manifestation and their Relationship to Glycemic control.
24	8-2-2001	Dr. M Zubir Qureshi	Treatment of Diabetes type-II With Homeopathic Mdeicines.
25	10-3-2001	Shazia Shafat	Studies on Chromium Recovery from Tannery
26	23-5-2001	M. Karim Khan	Effect of Exposure to zinc on the histomorphology of the ovary and ovarian estrogen in a Fish <i>Tilapia nilotica</i> .
27	6-8-2001	Farhana Zarif	Incidence of Neonatal Hypothyroidism in infants delivered in different hospitals of Islamabad.
28	17-4-2001	Muhammad Ayub	Toxic effects of Zinc on the Testes of Exotic Fish Tilapia ( <i>Oreochromis nilotica</i> )
29	24-10-2001	Fouzia Naz	Changes in the blood cells due to their interactions with different membrane oxygenators during cardiopulmonary bypass.
30	24-10-2001	Shazia Ijaz	Comparison of different cardio-protective techniques during coronary artery bypass grafting assessed by metabolic and chemical markers.
31	2002	Kh Mahmood Ahmad	Dyslipidemia in type 2 diabetes mellitus – A risk factor to ischemic heart disease
32	2002	Sajid Rashid	Genetic mapping of autosomal recessive primary microcephaly locus in Pakistani kindreds.
33	2002	Farahana Zareef	Incidence of newnatal hypothyrodism in babies delivered in different hospitals of Islamabad.
34	2002	Farheen Niaz	Effect of salt stress in vitro growth of sugarcane.
35	2003	Samina Nawaz	Hospital study of polycystic ovarian patients and their treatment.

**M.Phil. Theses, University of Karachi**

No.	Date	Name of Student	Title
36	27-6-1995	Miss Parveen Najam	Morpho-taxonomic studies of the Tribe Nebriini (coleopteras Cladistic Analysis)
37	29-1-1997	Raooof Muhammad Niazi	A trawl study on Benthic Marine Macro-Organisms found in the Near shore waters of Karachi, Pakistan.
38	29-1-1997	Shaista Hameed	Zonation Patterns and seasonal Biomass of Intertidal Macro-Organisms

			of the Rocky Ledge of Pacha Near Karachi Arabian Sea).
39	26-11-1998	Mr. Ehteshamul Haq	Taxonomic studies of Pakistani sphingids ( <i>Lepidopteva Heterocera</i> )
40	25-3-1999	Ms. Zaib-un-Nisa	Biological Studies of Selected. Penaeid Shrimps Leading to their Hatchery cultures.
41	2004	Mr. shabir Ali Amr	Fishing gears in operation along the coast of Pakistan: their selectivity and effectiveness.
42	2004	Mr. Zubair Ahmed	Aspects of morphology and taxonomy of Curculionidae (Coleoptera:Curculionoidea) of Pakistan and their cladistic analysis.

**Ph.D. Theses, Quaid-i-Azam University, Islamabad**

No.	Date	Name of Student	Title
43	5-4-2000	Mr. Abdul Qadir Khan	Epidemiological, Microbiological and Molecular Biology studies of Enteropathogenic Escherichia Coli Isolated from Diarrhoeal Patients of Rawalpindi/Islamabad.
44	3-8-2000	Miss. Khalida Kazmi	Situation of Hepatitis in Pakistan & Preparation of Diagnostic reagents for the detection of HBs AG (ELISA).
45	29-1-2001	Ms. Rasheda Mazhar	Studies of Eimeria garnhami, Isolation, in vitro culture of sporozoites and Ultrastructural morphology.
46	13-6-2001	Mr. Rashid Anwar	Geographical diversity in local wheat ( <i>Triticum aestivum</i> L.) Germplasm based on Morphological and Bio-chemical traits.
47	28-11-2001	Shamim Alam	Investigation on ABO and Rh blood group systems and association with serum lipids, lipoproteins and related a\ factors in a Pakistani population sample from North Western Frontier Province (NWFP).
48	18-8-2001	Ms. Rashida Soomro	Effect of growth conditions on the uptake of $NH_4^+$ - $N_2$ $NO_3^-$ -N and on the activity of nitrate reductase, glutamine synthetase and glutamate dehydrogenase in cell suspension cultures of <i>Jatropha Cureas</i> .
49	2002	Fahim Tahir	Dynamics of male infertility.
50	2002	M. Akram Randhawa	Diffusion of drugs across body

			membrane and their ionization.
51	2003	Mrs. Ghazala Ashfaq	Gynecological disorders and tubal ligation.
52	2003	Amina Zuberi	A study of annual female reproductive cycle: the ovarian steroid profile in the cyprinids, <i>Barilius vagra</i> and <i>Cyprinion watsoni</i> (Teleosts)

## PUBLICATIONS

### ***Pest Ecology, Control and Management***

1. **Afzal, M.**, Ahmad, I. & Khan, M.A.M.1977 'Estimation of infestation due to paddy stem borers in the lower Sind ' Chemosphere 9: 545-550.
2. Mateen, A., **Afzal, M.** & Ahmad, I.1977 'An analysis of the so-called peripheral effect due to rice stem borers in the paddy fields of lower Sind' Pakistan J. Sci. Ind. Res. 20(2): 93.
3. **Afzal, M.** Shaukat, S.S.& Ahmad, I.1979 'A rapid method for the assessment of ricestem borer incidence' Chemosphere 2: 107-112.
4. Ahmad, I., **Afzal, M.** & Shaukat, S.S.1979 'A reliable measure for the estimation of yield loss in different stages of rice crop due to stem borer incidence in lower Sind' Chemosphere 8: 575-580.
5. Ahmad, I. & **Afzal, M.**1979 'Factors limiting survival of the hibernating paddy stem borer larvae in lower Sind' Chemosphere 8: 569-574.
6. **Afzal, M.** & Ahmad, I.1981 'A more reliable measure for the precise estimation of yield loss in rice crop in lower Sind' Chemosphere 10(10): 1109-1114.
7. Ahmad, I. **Afzal, M.** & Shaukat, S.S.1981 'Larval density: A new and the most efficient measure for estimation of yield loss due to paddy stemborers in lower sind'. Chemosphere 10(10): 1115-1121.
8. Ahmad, I. & **Afzal, M.**1982 'Seasonal abundance of rice stem borer in lower Sind' Chemosphere 11(5): 521-524.
9. **Afzal, M.** Ahmad, K.A. & Hasan, S.A.1985 'Effect of environmental factors on pheromone trap catches of *Heliothis armigera* (Hubn)' Chemosphere. 14 (11-12): 1921-1924.
10. **Afzal, M.**1987 'Pest incidence and crop loss assessment' Integrated Pest Management, Pakistan Agricultural Research Council, National Agriculture Research Centre (Ed.C. Inayatullah) pp. 160-176.
11. Hasan, S.A. & **Afzal, M.**1996 'Distribution and abundance of two noctuid pests of cultivated forests in Islamabad' Nat. Hist. Bull. 2(1):9-14.

### ***Biological Control***

12. Ahmad, K. Raja, N.U. **Afzal, M.**, Khalique, F.& Malik, B.A.1988 'Bio-efficacy of four strains of *Bacillus thuringiensis* Berliner against hairy caterpillar *Diacrisia obliqua* Wlk ' Pakistan J. Sci.Ind. Res. 31(9): 637-637.



13. Ahmed, K., Khalique, F. & **Afzal, M.**1989 'Effect of Agronomic factors on the incidence of *Heliiothis Armigera* (Hubn) and its parasite *Campoletis chlorideae* (U) in chickpea field ' Pak. J. Sci. Ind. Res. 32(10): 694-697.
14. Khalique, F. Ahmed, K. & **Afzal, M.**1989 'Evaluation of *Bacillus thuringiensis* Berliner against Chickpea Pod-Borer' Pak. J. Sci. Ind. Res. 32(2): 114-116.

### **Applied Entomology**

15. Ahmad, K., **Afzal, M.** Malik, B.A. & Khalique, F.1985 'Simple low cost diet for mass rearing of gram pod borer *Heliiothis armigera* (Hubn.)Lepidoptera: Noctuidae.' Pak. J.Sci.Ind. Res. 28(4):257-260.
16. Khalique, F., Ahmed, K., Malik, B.A. & **Afzal, M.**1987 'Use of vegetable oil for protection of stored greengram (*Vigna radiate* (L) Wileze) from attack of *Callosobruchus maculatus* (Fabr) (Coleoptere: Bruchidal) Pakistan J' Sci Ind. Res. 30(1): 43-45.
17. Khalique, F. Ahmad, K. & **Afzal, M.**1988 'Protection of stored chickpea, *Cicer arietinum* L' Tropical Pest management 34(3): 333-334
18. Ahmed, K., Raja, N.U., **Afzal, M.**, Khalique, F. and Malik,B. A. 1988. Bioefficacy of four strains of *Bacillus thuringiensis* Berliner against hairy caterpillar (*Diacrisia obliqua* Wik.). Pak. J. Sci. Ind. Res. 31(9): 637-639.
19. Ahmed, K., Khalique, F., Khan, I. A., **Afzal, M.** & Malik, B.A. & Malik, M. R.1988 'Efficacy of vegetable oils for protection of green gram from attack of bruchid beetle' Pakistan J. Agric. Res. 9(3): 413-416.
20. Ahmad, I. & **Afzal, M.**1976 'Appearance of a potential pest of rice, *Podops limosa* Walker (Pentatomidae: Podopini) the stink bug of paddy, in the rice field of Sujawal and Thatta districts of lower Sind'. Pakistan J. Sci. Ind. Res. 19(3-4): 166.

### **Ecology**

21. **Afzal, M.**1987 'The life table' Integrated Pest Management. Pakistan Agricultural Research Council, National Agriculture Research Centre. (Ed. C. Inayatullah) pp. 101-105.
22. **Afzal, M.** & Hafeez, M.A.1987 'Life Tables of two closely related Taxa of Genus *Spilostethus* (Lygaeidae) in three food Regimes' Integrated Pest Management, Pakistan Agricultural Research Council, National Agriculture Research Centre (Ed.C. Anayatullah) pp. 106-131.
23. Shaukat, S.S., Khairi, A., Khan, D. & **Afzal, M.**1982 'On the applicability of McIntosh's diversity measures'. Trop. Ecol. 22(1): 54-81.
24. **Afzal, M.** Ahmad, I., Dar, M.I. & L Jam, M.Z.1977 'Species diversity of phytophagous Hemiptern in relation to vegetation composition '. Proc. ent. Soc. Kar. 7-8: 82-83.
25. **Afzal, M.** Ahmad, I., Dar, M.R. & Khan, M.Z.1986 'Species diversity of phytophagous hemipterans in relation to the vegetation composition of the Karachi University' Folia Biol. (Krakow). 34(2): 167-174.

26. Haq, A., & Shaukat, S.S, **Afzal, M.**1977 'Cotton yield and weed density and diversity in response to pre-emergence application of herbicides in cotton field' Pak. J. Bot. 13(1): 77-86.
27. Tariq, J., Ashraf, M., Jaffer, M. & **Afzal, M.**1996 'Pollution status of the Indus River, Pakistan, through heavy metal and macronutrients contents of fish, sediment and water' Wat. Res. 30(6): 1337-1344.
28. Sheikh, B. A. and **Afzal, M.**1997 'Biodiversity' in Biodiversity of Pakistan (eds. Mufti S.A., Woods, C.A. & Hasan, S.A.). PMNH, Islamabad & FMNH, Gainesville.
29. **Afzal, M.**, M. Shah, S. Sikandar and M. I. Shinwari. 2001. Ecological Zones of Pakistan. In: M. Afzal and S. A. Mufti (Eds). *Natural History Research in Pakistan*. Pakistan Scientific and Technological Information Center, Islamabad.

### **Behavioural Analysis**

30. Ahmad, I. & **Afzal, M.**1977 'Factor influencing the response of female fruit flies, *Dacus (Strumeta) zonatatus* (Saunders) to the male sex pheromone ' Folia Biol. (Krakow) 25(2):19-25.
31. Rab, A., Sahibzada, S. & **Afzal, M.**1991 'Consort behavior of free ranging Rhesus monkeys (*Macaca mulatta*) of Pakistan' Pak. J. Zool., 23(3):219-224.

### **Biochemistry**

32. Ch. K.S.A., Qazi, M.H., Hafeez, M.A. & **Afzal, M.**1984 'A rapid method for estimation of latent iron binding capacity and percentage saturation of transferrin in vertebrate species' Pak. J. Biochem. 15(1): 11-13.
33. Ch. K.S.A. Hafeez, M.A., Qazi, M.H. & **Afzal, M.**1983 'Relation of hepatic and muscle iron uptake with plasma iron levels in a land manitor, *Varanus bengalensis*' Pak. J. Biochem. 16(1-2): 37-42.
34. Ch. K.S.A., Hafeez, M.A. & **Afzal, M.**1984 'Isolation, purification and characterization of the plasma transferin of *Varanus bengalensis* (Reptilia)' Pakistan J. Zool. 16(1): 9-19.
35. Ch. K.S.A., Hafeez, M.A. & **Afzal, M.**1985 'Seasonal dependent transferrin polymorphism in *Varanus bengalensis* Pak' J. Biochem. 18(1-2): 49-52.

### **Quantitative Biology & Genetics**

36. **Afzal, M.** Ahmad, R. Tahir, M. Malik, B.A. & Khalique, P.1987 'Some genetic parameters of resistance to *Callosobruchus maculatus* F (Coleoptera: Bruchidae) in chickpea (*Cicer arietinum* L)' Sabrao J. 19(1): 45-48.
37. Ahmed, K., Khalique, F., **Afzal, M.**, Tahir, M. & Malik, B.A.1989 'Variability in Chickpea (*Cicer arietinum* L) Genotypes for resistance to *Callosobruchus maculatus* F (Bruchidae)' J. Stored Prod. Res. 25(2): pp. 97-99.
38. Ahmad, K. Khalique, F., Khan, I. A., **Afzal, M.** & Malik, B. A.1991 'Studies on genetic resistance in chickpea (*Cicer arietinum* L) to bruchid beetle (*Callosobruchus chinensis* L) attack' Pak. J Sci. Ind. Res. 34(11):449-452.

39. **Afzal, M.** Baig, K.J. & Rafique, M.1988 'Taxometric study of the sub-genus *Rana (Rana)* L (Ranidae: Amphibia) with special reference to phylogeny' *Biologia*.34(1):85-105.
40. **Afzal, M.**, Shaukat, S.S.& Ahmad, I.1979 'A Taxometric study of the family scutellaridae Leach from Pakistan' *Oriental Insects* 16(3): 373-383.
41. Nasir, Y.J. & **Afzal, M.**1987 'A statistical approach to the morphological variability of *Androsace himalaica* (Knth) Handel-Mazetti (Primulaceae) in Pakistan' *Bot. J. Linn. Soc.* 94: 465-468.
42. Salma, S.S. & **Afzal, M.**1987 'Cluster analysis of some morphological characters of house sparrow (*Passer domesticus*) *Biologia*' 33(1): 21-25.

### ***Biodiversity, Taxonomy and Morphology***

43. Islam, Z., **Afzal, M.** & Ahmad, I.1974 'Reinterpretation of male genitalia of *Tryporyza incertulas* (Walk.) (Lepidoptera : Pyralidoidea) a major rice pest in Lower Sind' *Proc.Ent.Soc.Kar.* 4-6:47-53
44. Ahmad, I., Islamullah, M. & **Afzal, M.**1976 'Comparative functional morphology of the alimentary organs of lygaeoid-coreoid species (Heteroptera: Pentatomomorpha: Trichophora) of Pakistan with reference to phylogeny' *Pak. J. Zool.* 8(1): 47-64.
45. Ahmad, I. & **Afzal, M.**1976 'Scent apparatus of *Dicranocephalus* (Heteroptera:Trichophora: Stenocephalidae) with their bearing on classification' *Pakistan J. Zool.* 8(2): 209-214.
46. Ahmad, I., **Afzal M.** & Khan, M.A.M.1976 'Aspects of larval morphology and larval and adult key to the rice stem borers (Insecta: Lepidoptera) and a new record of a rice stem borer *Niphadoses gilviberbis* (Zell) from Pakistan' *Pakistan J. Sci. Ind. Res.* 23(1-2):40-45.
47. Ahmad, I. & **Afzal, M.**1977 'Functional morphological and histological studies of the pheromone gland of fruitfly *Dacus (Strumeta) zontatus* (Saunders)' *Acta Biologica. Cracoviensia Ser. Zoologia.* 20: 135-142.
48. Ahmad, I. & **Afzal, M.**1977 'The valvular mechanism in the scent apparatus of the red pumpkin bug *Coridius janus* (Fabr) (Pentatomo-idea; Dinidoridae)' *Islamabad J. Sci.* 4(1-2): 1-4.
49. Ahmad, I. & **Afzal, M.**1977 'Studies on the pheromone glands of *Tryporyza incertulas* (Walk) Lepidoptera : Pyralidoidea)' *Phillip. J. Sci.* 106(3-4): 147-164.
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