

**DR. SYED GHULAM MUSHARRAF**

**ASSOCIATE PROFESSOR**

DR. PANJWANI CENTER FOR MOLECULAR MEDICINE AND DRUG  
RESEARCH,

H.E.J. RESEARCH INSTITUTE OF CHEMISTRY,

INTERNATIONAL CENTER FOR CHEMICAL AND BIOLOGICAL  
SCIENCES, UNIVERSITY OF KARACHI, KARACHI-75270, PAKISTAN.

## **CURRICULUM VITAE**

### **PERSONAL INFORMATIONS:**

**Name:** Syed Ghulam Musharraf  
**Father Name:** Syed Ghulam Rabbani  
**Date of Birth** 14<sup>th</sup> August, 1977  
**CNIC #** 42101-9661477-1  
**Contact Details:** Lab 308  
H.E.J. Research Institute of Chemistry,  
Dr. Panjwani Center for Molecular  
Medicine and Drug Research,  
International Center for Chemical and  
Biological Sciences (ICCBS),  
University of Karachi,  
Karachi-75270, Pakistan.  
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### **CURRENT STATUS:**

#### **Associate Professor**

H.E.J. Research Institute of Chemistry,  
Dr. Panjwani Center for Molecular Medicine and Drug Research,  
International Center for Chemical and Biological Sciences (ICCBS),  
University of Karachi,  
Karachi-75270, Pakistan.

### **ACADEMICS:**

#### **Post Doctoral Fellow (2005-2006)**

Under the supervision of **Prof. Dr. Gunther Bonn**  
Institute of Analytical and Radiochemistry  
University of Innsbruck, Innsbruck  
Austria

#### **Ph. D. (Bioanalytical Chemistry, 2004)**

Under the supervision of **Prof. Dr. M. Iqbal Choudhary H.I., S.I., T.I.** (Director, ICCBS)  
H. E. J. Research Institute of Chemistry, ICCBS  
University of Karachi, Karachi 75270, Pakistan  
*Thesis Title: "Microbial Transformation of  
Bioactive Cyclic Natural Products."*

**M.Sc. (Organic Chemistry, 1<sup>st</sup> Division, 1998)**

Department of Chemistry

University of Karachi,

Karachi-75270, Pakistan

*Thesis Title: "Glibenclamide and Cephadrine*

*Metal Interactions."*

**B.Sc. Hons. (1<sup>st</sup> Division, 1997)**

Department of Chemistry

University of Karachi,

Karachi-75270, Pakistan

**AREA OF INTEREST:**

➤ **Biological mass spectrometry:**

-Utilization of modern mass spectrometric approaches in addition with others fractionated tools for the searching of serological proteomics and metabolomics biomarkers in lungs, oral and breast cancers patients.

➤ **Organic mass spectrometry:**

-Development of protonated /deprotonated fragmentation pathways, gas-phase reactions studies, and structure-fragmentation relationship (SFR) studies of pharmacological important classes of natural products.

-Oil screening and optimization in Pakistani micro algae for biodiesel production.

-New MALDI matrix development for the analysis of metabolites in biological fluids.

-Ultra-fast HPLC, TLC-Densitometric and LC-MS method development for the marker compounds analysis in pharmaceutical products, agricultural products and commercially important plant extracts.

-Metabolomic profiling of Pakistani rice and mangoes by modern separation techniques including LC-MS-MS.

**AWARD AND HONOUR:**

- Selected as a member of **Global Young Academy (GYA)**, 2017
- Recipient of **The Charles Wallace scholarship**, UK, 2016
- Selected as a **TWAS young affiliates 2016** from Pakistan in 2016
- Recipient of **Endeavour Executive Fellowship**, Australia, 2015.
- Atta-ur-Rahman Gold medal award in 2013 from Pakistan Academy of Science.
- Categorized under "A Category Scientist" by the Pakistan Council for Science and Technology (PCST), Productive Scientist of Pakistan 2014
- Selected as a Member of Pakistan Academy of Science in 2013.
- Recipient of Erasmus Mundas Scholarship in 2013
- Best Research Paper Award, Title "Silica-Lanthanum Oxide- Pioneer Composite of Rare Earth Metal oxide in Selective phosphopeptides Enrichment" in 2012 from HEC announced in March 2015.

- Selected as an Associate Young Scientist of the Pakistan in 2012 from Pakistan Academy of Science.
- Recipient of Cash Award of Research Productivity allowance (RPA) 2010-2011.
- Selected participants for Afro-Asia workshop in chemistry 2011 conducted by JNCASR (India) and funded by TWAS.
- Selected participants for ASDC course on mass spectrometry in 2011 conducted by VERIFIN (Finland) and funded by OPCW.
- Selected participants for CW-LSE 11 course on mass spectrometry in 2010 conducted by VERIFIN and funded by OPCW.
- Recipient of Cash Award of Research Productivity allowance (RPA) 2008-2009.
- XVIIIth Star Awards 2007 on national level under the auspices of South Asia Publication and awarded.
  - (i). A Gold-Plated Trophy
  - (ii). A Certificate of Excellence
- Recipient of Cash Award of Research Productivity allowance (RPA) 2007.
- Austrian OAD Postdoctoral Fellow ship (2005-2006).
- 3rd Prize of Dr Zafar Hussain Zaidi on Poster presentation entitled Microbial Transformation of Bioactive Natural Products: 9th International Symposium on National Product Chemistry (Jan. 10-13, 2004, Karachi, Pakistan).
- Research Fellowship Awarded by International Center for Chemical and Biological Science, H.E.J. Research Institute of Chemistry, University of Karachi Fellowship of (1999-2004).

#### RESEARCH GRANT WON:

Title of Project	Amount	Funding Agency	Year
Development of an Improved Open Modification Search Workflow to Identify Protein Signatures in Tandem Mass Spectrometry Experiments for the Breast Cancer Diagnosis and Therapy (Co-PI)	Rs.2,881,346/-	HEC (NRPU)	2017
Chemical fingerprinting of the poisonous plants of Pakistani origin by mass spectrometric methods	EUR 15,000/-	OPCW	2017
Database Development of ESI-MS/MS of Natural Products for Interactive Identification of Drug-Like Agents	Rs. 6,802,211/-	National ICT R&D	2017
Development of a Standardized Poly-herbal Phyto-pharmaceutical Product Linkus along with Standardized Dry Powder Extract	Rs. 5,206,110/-	HEC	2017
Identifying allele- specific polymorphism in fragrance gene in rice ( <i>Oryza sativa</i> L.) (Co-PI)	Rs. 3,738,305/-	HEC	2016
Improvement of Chickpea for blight and drought stress using Metabolomics and Genomics assisted breeding (Co-PI)	Rs. 8,135,500/-	PARC (Pakistan Agriculture Research	2016

Metabolite Profiling and Chemometric Analyses of Acute Myeloid Leukemia and Acute Lymphoblastic Leukemia for Serological Biomarkers: An Unambiguous Approach Towards the Establishment of Early Diagnostic Picture	Rs. 2,325,000/-	Council) HEC	2016
Mass Spectrometric Analysis of Proteins/ Peptides Associated with Top-7 Abundant Proteins of Plasma in Smoker, Non-smoker, COPD and Lung Cancer Patients: An Unambiguous Finding of Serological Biomarkers ( <i>Running</i> ).	Rs. 2,200,000/-	HEC	2013
Electrospray-Tandem Mass Spectrometric Studies on Steroidal Alkaloids of Buxus Species for Structure Fragmentation Relationship Development–Rapid Dereplication for Unambiguous Identification of Medicinally Important Steroids ( <i>Completed</i> ).	Rs. 677,000/-	OPCW	2012
Method Development and ICH Validation for Quantitative Determination of Mesterolone, WADA Prohibited Anabolic Steroid, in Human Urine by Multiple Reaction Monitoring (MRM) Mass Spectrometric Approach ( <i>Under Progress</i> )	Rs. 505,931/-	PAS	2012
Metabolomics Profiling of Pakistani Healthy Persons, Smokers, and Lung Cancer Patients by Modern Mass Spectrometric Tools for the Identification of Biomarker Compounds ( <i>Completed</i> ).	Rs. 162,000/-	PSF	2012
Biodiesel Production from Algae: High-through Put Screening of Oil Contents in Pakistani Algae through Modern Mass Spectrometric Techniques ( <i>Completed</i> )	Rs. 4, 262,862/-	HEC	2007
Spare parts grant	Rs. 0.92 million	HEC	2009
Spare parts grant	Rs. 0.57 million	HEC	2011

#### HONORARY APPOINTMENTS:

- Member of the Editorial Board of Scientific Reports (Nature Publishing Group) since 2014

- Member of the Editorial Board of an international Journal, “Journal of Natural Pharmaceuticals” since 2009.
- Reviewer of “Journal of Combinatorial Chemistry” (USA), ACS publishers, since 2009.
- Reviewer of “Journal of Molecular Catalysis B: Enzymatic” (UK), Elsevier publishers, since 2011
- Reviewer of “International Journal of mass spectrometry” (USA), ACS publishers, since 2011.
- Reviewer of “Rapid Communications in mass spectrometry”, John Wiley & Sons, since 2013.
- Reviewer of “Nature Communication”, Nature Group, since 2013.
- Member of the Editorial Board of an international Journal, “Chemical Reports (Nature Publishing group)” since 2013.

#### PROFESSIONAL SOCIETY MEMBERSHIP:

- Life member of Chemical Society of Pakistan since 2006

#### EXPERIENCE:

<b>Visiting Scientist</b> University of Geneva, Switzerland For High-throughput analysis of natural products using advanced mass spectrometric tools	1 <sup>st</sup> August 30 <sup>th</sup> September 2014
<b>Visiting Scientist</b> SILS, University of Amsterdam, Netherland For proteins quantification using FTMS	1-30 September. 2013
<b>Visiting Scientist</b> The Wistar Institute 3601 Spruce Street Philadelphia, PA 19104, USA <i>Mass Spectrometric Proteomic Profiling of SCID Mice Plasma</i>	January-June. 2008
<b>Associate Professor</b> H.E.J. Research Institute of Chemistry International Center for Chemical Sciences University of Karachi	May 2013-present
<b>Assistant Professor</b> H.E.J. Research Institute of Chemistry International Center for Chemical Sciences University of Karachi	April 2007-April. 2013
<b>Research Officer</b> H.E.J. Research Institute of Chemistry International Center for Chemical Sciences University of Karachi	Jan. 2006-March 2007
<b>Post Doctorate Research Fellow (OAD)</b> Institute of Analytical and Radiochemistry	Feb 2005-Jan. 2006

University of Innsbruck  
Austria

*Investigation of Protein and Peptides through modern mass spectrometry techniques in Sinupret (a product of BIONORICA Company)*

**Research fellow**

H.E.J. Research Institute of Chemistry  
International Center for Chemical Sciences  
University of Karachi

March 1999-Feb.  
2005

*“Microbial Transformation of Bioactive Cyclic Natural Products”*

**Quality Control Analyst**

Industrial Training in Quality Assurance Department of  
Multinational Company, Wyeth Pakistan Limited.

Oct.-Nov. 2003

**Junior Research Officer**

Industrial Analytical Center  
H.E.J. Research Institute of Chemistry  
International Center for Chemical Sciences  
University of Karachi

Aug 2002-Dec. 2003

**Research Student**

Department of Chemistry  
University of Karachi, Karachi-75270, Pakistan

Jan 1998-Dec. 2004

*Study on Drug-Metal interactions of .Glibenclamide and  
Gliclazide*

**M.PHIL./ PH. D. THESIS SUPERVISED**

S.No.	Name	Thesis Title	Student Status
1.	Dr. Nayab Kanwal	Chemical Fingerprinting of Fagonia indica and Medicinally Important Lichen Species	Ph.D. (2017)
2.	Ms. Mahwish Saleem	Mass Spectrometric Studies of Proteins and Peptides in Lung Diseases	M.Phil. (2016)
3.	Dr. Amna Jabbar Siddiqui	Mass Spectrometric Investigation of Acute Myeloid Leukemia and Acute Lymphoblastic Leukemia for Pattern-based Metabolite Profiling of Human Serum	Ph. D. (2016)
4.	Ms. Bibi Zareena	Electrospray Tandem Mass Spectrometric Study of Bioactive Compounds of Plants Origin	M.Phil. (2016)

5.	Dr. Arslan Ali	Mass Spectrometric Fingerprinting of Withanolides for Screening in <i>Withania</i> Species	Ph. D. (2015)
6.	Dr. Muhammad Arif Ahmed	Microalgal oil Screening for Biodiesel Production by Mass Spectrometric Techniques	Ph. D. (2015)
7.	Dr. Muhammad Shoaib (As a co-supervisor)	Quantification of inorganic Toxins in Tobacco Products and Study of the correlated effects on Metabolic Plasma Profiling by Mass Spectrometry and TLC Densitometry	Ph. D. (2015)
8.	Dr. Naveed Iqbal	Chromatographic Method development for Guggulsterone quantification in <i>Commiphora mukul</i> and Phytochemistry Investigation of Sarcococca Alkaloids	Ph. D. (2015)
9.	Dr. Shumaila Mazhar	Low Molecular Weight Metabolites Profiling of Plasma Samples by Mass spectrometry: A Screening for Lung Cancer Biomarker.	Ph. D. (2015)
10.	Dr. Madiha Goher	Electrospray Tandem mass Spectrometric (ESI-MS/MS) analyses of pharmacologically important terpenes and related compounds for the identification of diagnostic fragments and their fragmentations pathways.	Ph. D. (2014)
11.	Dr. Shazia Perveen (As a co-supervisor)	Study of Molecular Recognition Host-Guest Interaction between Different Hosts and Guests (Like Cyclodextrin with Viologens)	Ph.D. (2014)
12.	Dr. Urooj Fatima (As a co-supervisor)	Drug Degradation Investigation of Corticosteroid in Presence of Antibiotic.	Ph. D. (2014)
13.	Mr. Umair Gulzar	Chromatographic method development and validation for the simultaneous analysis of anabolic steroids, Testosterone and its ester derivatives	M. Phil. (2013)
14.	Dr. Naghma Hashmi	Application of modern mass spectrometric approaches for the identification of markers in the blood sample of lung cancer patient.	Ph. D. (2012)



15.	Ms. Iffat Azeem	Toxic effects of POPs including Organochlorine pesticides on selected Aquatic and Terrestrial Organisms	M.Phil. (2012)
16.	Ms. Aisha Bibi	Method development for the analysis of low molecular weight compounds and peptides by matrix assisted laser desorption /ionization (MALDI) technique	M.Phil. (2012)
17.	Mr. Muhammad Shoaib (As a co-supervisor)	Method development and validation for nicotine analysis in various tobacco formulations	M.Phil. (2009)

#### M. Sc. THESIS SUPERVISED (from Department of Chemistry, Karachi University):

1	Mr. Arslan Ali	Development of Fragmentation Pattern of Some Bioactive Compounds	M. Sc. (2008)
2	Miss Mehjabeen Tabassum	Oil Determination in Various Algal Species of Pakistan	B. S. (2010)
3	Miss Mafia waheed	Quantitative Analysis of Stress Degraded Nicotine by HPTLC	B. S. (2010)
4	Mr. Mian Mohammed Zia	Stress Degradation of Nicotine by Densitometric HPTLC	B. S. (2010)
5	Miss Komal Shamim	Mass Spectrometric Characterization of Algal Oil	B. S. (2010)
6	Mr. Muhammad Atif Jalib	Microbial Transformation of Nicotine and Spectral Analysis of Products	B.S. (2010)
7	Haris Ahmed	Stress degradation studies and stability-indicating TLC-densitometric method of mesterolone in its pharmaceutical formulations	M.Sc (2012)
8	Wardah Mazhar	Stress degradation studies and stability-indicating TLC-densitometric method of stanozolol in its pharmaceutical formulations	M.Sc (2012)
9	Aliya Khatoon	Stress Degradation Studies and Stability indicating TLC- densitometric method of Methyl Testosterone in its Pharmaceutical Formulations	M.Sc (2012)

#### CONFERENCE AND WORKSHOP ATTENDED (NATIONAL /INTERNATIONAL)

2016	➤ 14 <sup>th</sup> Eurasia Conference on Chemical Sciences, December 15 <sup>th</sup> -18 <sup>th</sup> , 2016 HEJ Research institute of Chemistry, ICCBS, University of Karachi
2015	➤ 5 <sup>th</sup> MMDR organized by PCMD, ICCBS from 12-15 January 2015 at ICCBS, Karachi, Pakistan.

	<ul style="list-style-type: none"> <li>➤ Resource Person at NASIC conference cum workshop on “herbal drug development for socio-economic uplift in developing world”, delivered lecture on Modern Extraction and Isolation Techniques, organized by The University of Jordan from 6-8 September 2015 at University of Jordan, Amman, Jordan.</li> <li>➤ Invited Lecture on 1st International Conference on Natural Products and Drug Discovery Mass Spectrometric entitled “Dereplication Approach for Plant Extract and Plant Powder: A Case Study on <i>Withania somnifera</i>” organized by The University of Jordan from 9-11 September 2015 at University of Jordan, Amman, Jordan.</li> <li>➤ Invited Lecture on Seminar in the use of Mass spectrometry in organic chemistry, entitled “Probing of Molecules Using ESI and MALDI Mass Spectrometry” at 18, November 2015, organized by Department of Chemistry, Urdu Science University.</li> <li>➤ Invited Lecture delivered on “Probing of Molecules in Finely Powdered Plant Materials to Plant Extract Based on Advanced Mass Spectrometric Tehniques”, 5-8 October 2015, organized by The Islamia University of Bahawalpur Pakistan.</li> </ul>
2014	<ul style="list-style-type: none"> <li>➤ 20<sup>th</sup> International Mass Spectrometry Conference (IMSC), 24–29, August, 2014, Geneva, Switzerland.</li> <li>➤ 2<sup>nd</sup> International conference Driving Research towards Economy IFS, 13-14, November, 2014, Kandy, Srilanka.</li> <li>➤ NASIC Workshop on Modern Spectroscopic Techniques and their Applications in Structure Determination, 1-3 December 2014, HEJRIC, ICCBS, Karachi, Pakistan.</li> </ul>
2013	<ul style="list-style-type: none"> <li>➤ 14<sup>th</sup> Asian Symposium on Medicinal Plants, Spices and Other Natural Products, 09-12 December, 2013, HEJRIC, ICCBS, Karachi, Pakistan.</li> <li>➤ KDU international Research Symposium, 22-23 August 2013 at General Sir John Kotelawala Defence University, Srilanka</li> <li>➤ ASEA-UNINET Plenary Meeting, 17 to 22 February, 2012 at University Putra Malaysia, Kola Lumpur, Malaysia.</li> <li>➤ International &amp; 24th National Chemistry Conference, October 28-30, 2013 at Institute of Chemical Society Bahauddin Zakariya University Multan, Pakistan.</li> <li>➤ 4<sup>th</sup> International Symposium-cum-Training course on Molecular Medicine and Drug Research, January 7-10, 2013 at ICCBS, Karachi, Pakistan.</li> </ul>
2012	<ul style="list-style-type: none"> <li>➤ 11<sup>h</sup> International &amp; 23<sup>rd</sup> National Chemistry Conference, 15-17<sup>th</sup> October, 2012, University of Peshawar, Peshawar, Pakistan.</li> <li>➤ Workshop on Contract Negotiations with Donors from 5 June, 2013 at Sustainable Development Policy Institute, Islamabad.</li> <li>➤ 13<sup>th</sup> International Symposium on Natural Products Chemistry, 22-25<sup>th</sup> September, 2012, Karachi, Pakistan.</li> <li>➤ BioCon2012-Biochemistry in the Post Genomics Era, 9-12 July 2012, Department of Biochemistry, Karachi University.</li> </ul>

2011

- Training course on “Innovation and Future Studies for Sustainable Development”, March 5-9, 2012, COMSTECH, Islamabad
- IUPAC sponsored International Conference on Agrochemicals, February 15-18, 2012, New Delhi, India
- National Sciences Conference, Roadmap of Cutting Edge Technologies, 10<sup>th</sup>-12<sup>th</sup> January 2012, PMAS-Arid Agriculture University, Rawalpindi-Pakistan.
- ANRAP-IFFASA workshop on Natural products for Diabetes, 31<sup>st</sup> Dec. 2011-3<sup>rd</sup> January 2012, Dhaka, Bangladesh.
- The 1<sup>st</sup> Annual Conference of Middle-Eastern Association for Cancer Research (MEACR), 27<sup>th</sup>-29<sup>th</sup> December 2011, Tanta University, Egypt.
- 10<sup>th</sup> Shaukat Khanum Memorial Cancer Symposium, 18-20<sup>th</sup> November, 2011 Lahore, Pakistan”.
- 10<sup>th</sup> International and 22<sup>nd</sup> National Chemistry Conference” held on 21<sup>st</sup>-23<sup>rd</sup> November, 2011 at Agriculture University, Faisalabad.
- 3<sup>rd</sup> Chemistry Conference 2011 on Recent Trends in Chemistry, *October 17-19, 2011 Organized by Chemistry Division, PINSTECH, Islamabad, Pakistan.*
- Improving Capacities of Research and Identification of Marketable Science and Technology Research Graha Widya Bhakti, 10 -13 October 2011, Serpong – Indonesia.
- Afro-Asia workshop on Advance topics in Chemistry 2011 conducted by JNCASR June 3-17, Bangalore (India), funded by TWAS.
- Training course on "Intellectual Property Rights and Innovation Policy" (6 - 10 June, 2011) conducted by COMSTECH, Islamabad, Pakistan.
- 9<sup>th</sup> International and 21<sup>st</sup> National Chemistry Conference (15-17 March, 2011, Karachi, Pakistan).
- Special course on “Analytical Skill Development Course” at the Institute for Verification of the Chemical Weapons Convention (VERIFIN), Helsinki Finland, organized and funded by OPCW, 07-21 January 2011.
- 3rd International Symposium-cum-Training Course on Molecular Medicine and Drug Research (MMDR-3). January 03-06, 2011.

2010

- Special course on “The Enhancement of Laboratory Skills in Using Liquid Chromatography-Mass Spectrometry to Analyze Chemicals Related to the Chemical Weapons Convention (CW-LSE)”, Institute for Verification of the Chemical Weapons Convention (VERIFIN), Helsinki Finland, organized and funded by OPCW, 10-21 May 2010.
- 8<sup>th</sup> International and 20<sup>th</sup> National Chemistry Conference (15-17 Feb., 2010, Islamabad, Pakistan).

2009	<ul style="list-style-type: none"><li>➤ 2<sup>nd</sup> International Symposium on Molecular Medicine and Drug Research, January 12-15, 2009, International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan.</li></ul>
2008	<ul style="list-style-type: none"><li>➤ 11<sup>th</sup> International Symposium of Natural Product Chemistry, Oct. 29–Nov. 01, 2008, (Karachi, Pakistan).</li><li>➤ 58<sup>th</sup> ASMS Conference on Mass Spectrometry, Denver, USA (5-7 June, 2008)</li></ul>
2007	<ul style="list-style-type: none"><li>➤ Research Protocol Development Workshop (8-10, March, 2007).</li><li>➤ 7<sup>th</sup> International and 17<sup>th</sup> National Chemistry Conference (26-28 Feb., 2007, DI Khan, Pakistan).</li><li>➤ 1<sup>st</sup> International Symposium and Workshop-cum-Training Course on Molecular Medicine and Drug Research (16-30, Jan., 2007 Karachi-Islamabad).</li></ul>
2006	<ul style="list-style-type: none"><li>➤ 1<sup>st</sup> International Workshop/Seminar on Global Recognition of Patent System (13-14, Dec., 2006).</li><li>➤ “Workshop on New Instrumentation and Applications of Mass Spectrometry” (7-9 Aug., 2006, Karachi).</li><li>➤ Federation of Asian Chemical Society Symposium Japan and EXCO meeting (29-30, March, 2006).</li><li>➤ 3rd International Symposium of the Austrian Proteomics Platform (16-19, Jan., 2006, Tyrol, Austria)</li></ul>
2004	<ul style="list-style-type: none"><li>➤ IDB-COMSTECH-INTROM-IMR Workshop on Herbal Standardization. 16<sup>th</sup> –20<sup>th</sup> February, 2004, “Phytochemical Analysis and Determination of Markers in Medicinal Plants” (Herbal Medicine Research Center, Institute for Medical Research, Kuala Lumpur, Malaysia).</li><li>➤ Pak-China Bi-national Workshop on The Pharmacology and Standardizations of Herbal Medicines (22-27, Oct., 2004, Karachi, Pakistan).</li><li>➤ 9<sup>th</sup> International Symposium on National Product Chemistry (10-13, Jan., 2004, Karachi, Pakistan).</li></ul>
2003	<ul style="list-style-type: none"><li>➤ Work shop on the development of Medicine from Plants (8-12, Sep., 2003 Karachi, Pakistan).</li></ul>
2002	<ul style="list-style-type: none"><li>➤ 7<sup>th</sup> Eurasia Conference on Chemical Sciences (09-12, March, 2002, Karachi, Pakistan).</li><li>➤ IDB-COMSTECH-INTROM-IMR Workshop on Herbal Medicine. “Medical Plant Screening for Anti-Malaria” 1<sup>st</sup> –6<sup>th</sup> April, 2002. (Herbal Medicine Research Center, Institute for Medical Research, Kuala Lumpur, Malaysia).</li></ul>

	<ul style="list-style-type: none"><li>➤ 2<sup>nd</sup> International and 12th National Chemistry Conference (4-6, Feb., 2002 Jamshoro, Pakistan).</li><li>➤ Pakistan Bangladesh Binational Conference on Natural Product Chemistry (24-26, Sep., 2002).</li><li>➤ 3rd International and 13th National Chemistry Conference.(28-31 Dec., 2002).</li><li>➤ Work shop on Animal cell culture (December 2002).</li></ul>
2000	<ul style="list-style-type: none"><li>➤ 8<sup>th</sup> International Symposium on National Product Chemistry (18-22, Jan., 2000, Karachi, Pakistan)</li></ul>

#### CONFERENCE /WORKSHOPS ORGANIZED:

##### (A)- As an Organizing Sectary:

- 1 14<sup>th</sup> Eurasia Conference on Chemical Sciences, December 15<sup>th</sup>-18<sup>th</sup>, 2016 HEJ Research institute of Chemistry, ICCBS, University of Karachi
- 2 A Tow-days workshop entitled "Training Course cum Workshop on Application of Modern Mass Spectrometry for Natural Products-based Drug Development" at HEJ Research institute of Chemistry, ICCBS, University of Karachi, November 26-27, 2010.
- 3 Organizing Sectary of "Workshop on New Instrumentation and Applications of Mass Spectrometry" at the H.E.J. Research Institute of Chemistry, International Center for Chemical Sciences, University of Karachi, (7-9 August, 2006, Karachi, Pakistan).

##### (B)-Others (as an active organizing member):

- 1 As a Technical Coordinator in 14th Asian Symposium on Medicinal Plants, Spices and Other Natural Products, HEJRIC, ICCBS from 09-12 December, 2013 at ICCBS, Karachi, Pakistan.
- 2 As a Technical Coordinator in 13<sup>th</sup> International Symposium on Natural Products Chemistry at the H.E.J. Research Institute of Chemistry, International Center for Chemical Sciences, University of Karachi (22-25<sup>th</sup> September, 2012, Karachi, Pakistan).
- 3 3<sup>rd</sup> International Symposium-cum-Training Course on Molecular Medicine and Drug Research (MMDR-3). January 03-06, 2011.
- 4 11<sup>th</sup> International Symposium of Natural Product Chemistry", at the H.E.J. Research Institute of Chemistry, International Center for Chemical Sciences, University of Karachi, (Oct. 29–Nov. 01, 2008, Karachi, Pakistan).
- 5 1<sup>st</sup> International Symposium and Workshop-Cum-Training Course on Molecular Medicine and Drug Research at the Punjwani Center for Molecular Biology and Drug Designing (PCMD) (16-30, Jan., 2007 Karachi-Islamabad).
- 6 Active Organizing Member of "First Pak-France Binational Workshop on Natural Product Chemistry" at the H.E.J. Research Institute of Chemistry, International

Center for Chemical Sciences, (Jan. 14-15, 2004, Karachi, Pakistan).

**MISCELLANEOUS INSTITUTIONAL RESPONSIBILITIES:**

- 1 In-Charge Academic Coordination of ICCBS, University of Karachi
- 2 In-Charge Mass Spectrometric Section of ICCBS, University of Karachi
- 3 In-Charge HPLC Section of ICCBS, University of Karachi
- 4 In-Charge Maintenance of ICCBS, University of Karachi

**LIST OF PUBLICATIONS:****(A) Research Publications**

S. No.	Name of Authors	Journal Title	Title	Year	Volume	Art. No.	Page start	Impact factor
1	Hadi, N.I., Jamal, Q., Iqbal, A., Shaikh, F., Somroo, S., Musharraf, S.G.	Scientific Reports	Serum Metabolomic Profiles for Breast Cancer Diagnosis, Grading and Staging by Gas Chromatography-Mass Spectrometry	2017	7	1715		5.228
2	Musharraf, S.G., Bhatti, M.S., Choudhary, M.I., Rahman, A.-U.	European Journal of Pharmaceutical Sciences	Screening of inhibitors of angiotensin-converting enzyme (ACE) employing high performance liquid chromatography-electrospray ionization triple quadrupole mass spectrometry (HPLC-ESI-QqQ-MS)	2017	101		182	3.773
3	Abdul-Karim, R., Musharraf, S.G., Malik, M.I.	Journal of Polymer Science	Synthesis and characterization of novel biodegradable di- and tri-Block copolymers based on ethylene carbonate polymer as hydrophobic segment	2017	55		1887	3.113
4	Ali, A., Haq, F., Arfeen, Q., Sharma, K., Adhikari, A., Musharraf, S.G.	Biomedical Chromatography	Sensitive quantification of coixol, a potent insulin secretagogue, in <i>Scoparia dulcis</i> extract using high-performance liquid chromatography combined with tandem mass spectrometry and UV detection	2017		e3964		1.729
5	Musharraf, S.G., Iqbal, A., Ansari, S.H., Parveen, S., Khan, I.A., Siddiqui, A.J.	Scientific Reports	$\beta$ -Thalassemia Patients Revealed a Significant Change of Untargeted Metabolites in Comparison to Healthy Individuals	2017	7	42249		5.228

6	Fatima, I., Sadaf, S., Musharraf, S.G., Hashmi, N., Akhtar, M.W.	Scientific Reports	CD5 molecule-like and transthyretin as putative biomarkers of chronic myeloid leukemia - an insight from the proteomic analysis of human plasma	2017	7	40943		5.228
7	Ali, A., Shahid, N., Musharraf, S.G.	RSC Advances	Application of dyes as doping agents in MALDI-MS matrices for the signal enhancement of proteins	2017	7		6598	3.289
8	Akram, M.I., Vincent, M.I., Siddiqui, A.J., Musharraf, S.G.	Journal of Cereal Sciences	Polymeric hydrophilic interaction liquid chromatography coupled with Orbitrap mass spectrometry and chemometric analysis for untargeted metabolite profiling of natural rice variants	2017	73		165	2.402
9	Siddiqui, A.J., Musharraf, S.G., Choudhary, M.I., Rahman, A.-U.	Food Chemistry	Application of analytical methods in authentication and adulteration of honey	2017	217		687	4.052
10	Musharraf, S.G., Ameer, M., Ali, A.	Journal of Pharmaceutical and Biomedical Analysis	MALDI-MS analysis and theoretical evaluation of olanzapine as a UV laser desorption ionization (LDI) matrix	2017	132		190	3.169
11	Ghazanfar, S., Fatima, I., Aslam, M., Musharraf, S.G., Sherman, N.E., Moskaluk, C., Fox, J.W., Akhtar, M.W., Sadaf, S.	Journal of Proteomics	Identification of actin beta-like 2 (ACTBL2) as novel, upregulated protein in colorectal cancer	2017	152		33	3.876
12	Hussain, D., Musharraf, S.G., Najam-Ul-Haq, M.	Analytical and Bioanalytical Chemistry	Development of diamond-lanthanide metal oxide affinity composites for the selective capture of endogenous serum phosphopeptides	2016	408		1633	3.125
13	Musharraf, S.G., Ambreen Fatima, S., Siddiqui, A.J., Iqbal Choudhary, M., Atta-Ur-Rahman	Analytical Methods	<sup>1</sup> H-NMR fingerprinting of brown rice syrup as a common adulterant in honey	2016	8		6444	1.915



14	Akhtar, A., Kazi, T.G., Afridi, H.I., Musharraf, S.G., Talpur, F.N., Khan, N., Bilal, M., Khan, M.	Environmental Science and Pollution Research	Vortex-assisted ionic liquid-based dispersive liquid–liquid microextraction for assessment of chromium species in artificial saliva extract of different chewing tobacco products	2016	23		25288	2.76
15	Musharraf, S.G., Uddin, J., Siddiqui, A.J., Akram, M.I.	Food Chemistry	Quantification of aroma constituents of mango sap from different Pakistan mango cultivars using gas chromatography triple quadrupole mass spectrometry	2016	196		1355	4.052
16	Musharraf, S.G., Siddiqui, A.J., Shamsi, T., Naz, A.	Hematological Oncology	SERUM metabolomics of acute lymphoblastic leukaemia and acute myeloid leukaemia for probing biomarker molecules	2016	10.1002/hon.2313			3.494
17	Ayyub, A., Saleem, M., Fatima, I., Tariq, A., Hashmi, N., Musharraf, S.G.	International Journal of Biochemistry and Cell Biology	Glycosylated Alpha-1-acid glycoprotein 1 as a potential lung cancer serum biomarker	2016	70		68	3.905
18	Gull, Y., Rasool, N., Noreen, M., Altaf, A.A., Musharraf, S.G., Zubair, M., Nasim, F.-U.-H., Yaqoob, A., DeFeo, V., Zia-Ul-Haq, M.	Molecules	Synthesis of N-(6-Arylbenzo[d]thiazole-2-acetamide derivatives and their biological activities: An experimental and computational approach	2016	21	266		2.465
19	Irfan, M., Oh, J., Musharraf, S.G., Shah, M.R., Ahmed, S., Malik, M.I.	RSC Advances	Synthesis and meticulous molecular, morphological and thermal characterization of linear and star-shaped polycaprolactones	2016	6		98117	3.289
20	Musharraf, S.G., Shahid, N., Naqvi, S.M.A., Saleem, M., Siddiqui, A.J., Ali, A.	Scientific Reports	Metabolite Profiling of Preneoplastic and Neoplastic Lesions of Oral Cavity Tissue Samples Revealed a Biomarker Pattern	2016	6	38985		5.228
21	Musharraf, S.G., Siddiqui, A.J., Shamsi, T., Choudhary, M.I., Rahman, A.-U.	Scientific Reports	Serum metabonomics of acute leukemia using nuclear magnetic resonance spectroscopy	2016	6	30693		5.228

22	Musharraf, S.G., Ahmed, M.A., Zehra, N.	Analytical Methods	Quantification of FAMES in biodiesel blends of various sources by gas chromatography tandem mass spectrometry	2015	7		3372	1.915
23	Musharraf, S.G., Arfeen, Q.U., Haq, F.U., Ahmed, H.	Analytical Methods	Post-derivative TLC densitometric stability indicating assay for mesterolone and quantum chemical calculations	2015	7		8412	1.915
24	Musharraf, S.G., Kanwal, N., Thadhani, V.M., Choudhary, M.I.	Analytical Methods	Rapid identification of lichen compounds based on the structure-fragmentation relationship using ESI-MS/MS analysis	2015	7		6066	1.915
25	Ahmed, M.A., Khan, I., Hashim, J., Musharraf, S.G.	Analytical Methods	Sensitive determination of glycerol by derivatization using a HPLC-DAD method in biodiesel samples	2015	7		7805	1.915
26	Ali, H., Musharraf, S.G., Iqbal, N., Adhikari, A., Abdalla, O.M., Ahmed Mesaik, M., Kabir, N.	International Immunopharmacology	Immunosuppressive and hepatoprotective potential of Sarcococca saligna and its biomarker components	2015	28		235	2.551
27	Hayat, A., Jahangir, T.M., Khuhawar, M.Y., Alamgir, M., Hussain, Z., Haq, F.U., Musharraf, S.G.	Journal of Cereal Science	HPLC determination of gamma amino butyric acid (GABA) and some biogenic amines (BAs) in controlled, germinated, and fermented brown rice by pre-column derivatization	2015	64		56	2.402
28	Ali, A., Uddin, J., Ansari, H.N., Firdous, S., Musharraf, S.G.	Journal of Chromatography and Separation Sciences	Electrospray Tandem Mass Spectrometric Study of a Furo-Furan Lactone in Heliotropium eichwaldi	2015	6	7	307	1.501
29	Ahmad, I., Bano, R., Musharraf, S.G., Sheraz, M.A., Ahmed, S., Tahir, H., Ul Arfeen, Q., Bhatti, M.S., Shad, Z., Hussain, S.F.	Journal of Photochemistry and Photobiology A: Chemistry	Photodegradation of norfloxacin in aqueous and organic solvents: A kinetic study	2015	302		1	2.477

30	Ayyub, A., Saleem, M., Musharraf, S.G., Naz, M., Tariq, A., Hashmi, N.	Molecular Medicine Reports	Mass spectrometric identification, characterization and validation of the haptoglobin $\beta$ -chain protein as a lung cancer serum biomarker	2015	12		3755	1.559
31	Ikram, H.M., Rasool, N., Ahmad, G., Chotana, G.A., Musharraf, S.G., Zubair, M., Rana, U.A., Zia-Ul-Haq, M., Jaafar, H.Z.	Molecules	Selective C-arylation of 2,5-dibromo-3-hexylthiophene via Suzuki cross coupling reaction and their pharmacological aspects	2015	20		5202	2.465
32	Iqbal, N., Adhikari, A., Kanwal, N., Abdalla, O.M., Mesaik, M.A., Musharraf, S.G.	Phytochemistry Letters	New immunomodulatory steroidal alkaloids from <i>Sarcococa saligna</i>	2015	14		203	1.353
33	Rahman, T.U., Khattak, K.F., Liaqat, W., Zaman, K., Musharraf, S.G.	Records of Natural Products	Characterization of one novel flavone and four new source compounds from the bark of <i>milletia ovalifolia</i> and in-vitro inhibition of carbonic anhydrase-II by the novel flavonoid	2015	9		553	0.868
34	Musharraf, S.G., Mazhar, S., Choudhary, M.I., Rizi, N., Atta-Ur-Rahman	Scientific Reports	Plasma metabolite profiling and chemometric analyses of lung cancer along with three controls through gas chromatography-mass spectrometry	2015	5	8607		5.228
35	Ali, A., Maher, S., Khan, S.A., Chaudhary, M.I., Musharraf, S.G.	Steroids	Sensitive quantification of six steroidal lactones in <i>Withania coagulans</i> extract by UHPLC electrospray tandem mass spectrometry	2015	104		176	2.513
36	Musharraf, S.G., Goher, M., Zareena, B.	Steroids	Quantification of steroidal alkaloids in <i>Buxus papillosa</i> using electrospray ionization liquid chromatography-triple quadrupole mass spectrometry	2015	100		5	2.513
37	Iram, H., Rasool, N., Riaz, M., Ullah, A., Bokhari, T.H., Musharraf, S.G., Tareen, R.B., Zubair, M., Ercisli, S., Zia-Ul-Haq M.	Oxidation Communications	GC-MS analysis, antioxidant and antimicrobial studies of <i>Sophora mollis</i> essential and fixed oil	2015	38		689	0.451

38	Ahmad, I., Bano, R., Musharraf, S.G., Ahmed, S., Sheraz, M.A., ul Arfeen, Q., Bhatti, M.S., Shad, Z.	AAPS PharmSciTech	Photodegradation of moxifloxacin in aqueous and organic solvents: a kinetic study	2014	15		1588	1.954
39	Musharraf, S.G., Siddiqui, A.J., Mazhar, S.	Bioanalysis	Direct infusion ESI-MS analysis for metabolite profiling of human plasma using various fractionation techniques	2014	6		2057	2.813
40	Hayat, A., Jahangir, T.M., Khuhawar, M.Y., Alamgir, M., Siddiqui, A.J., Musharraf, S.G.	Journal of Cereal Science	Simultaneous HPLC determination of gamma amino butyric acid (GABA) and lysine in selected Pakistani rice varieties by pre-column derivatization with 2-Hydroxynaphthaldehyde	2014	60		356	2.402
41	Musharraf, S.G., Ali, A., Choudhary, M.I., Atta-Ur-Rahman	Journal of the American Society for Mass Spectrometry	Probing of metabolites in finely powdered plant material by direct laser desorption ionization mass spectrometry	2014	25		530	3.031
42	Ali, H., Kabir, N., Muhammad, A., Shah, M.R., Musharraf, S.G., Iqbal, N., Nadeem, S.	Phytomedicine	Hautriwaic acid as one of the hepatoprotective constituent of Dodonaea viscosa	2014	21		131	2.937
43	Fatima, B., Najam-Ul-Haq, M., Jabeen, F., Majeed, S., Ashiq, M.N., Musharraf, S.G., Shad, M.A., Xu, G.	Analyst	Ceria-based nanocomposites for the enrichment and identification of phosphopeptides	2013	138		5059	4.033
44	Musharraf, S.G., Mazhar, S., Siddiqui, A.J., Choudhary, M.I., Atta-ur-Rahman	Analytica Chimica Acta	Metabolite profiling of human plasma by different extraction methods through gas chromatography-mass spectrometry-An objective comparison	2013	804		180	4.712
45	Mohammad, M.Y., Musharraf, S.G., Al-Majid, A.M., Ur-Rahman, A.-., Choudhary, M.I.	Biocatalysis and Biotransformation	Biotransformation of mestanolone and 17-methyl-1-testosterone by Rhizopus stolonifer	2013	31		153	1.24

46	Musharraf, S.G., Arfeen, Q.U., Mazhar, W., Kanwal, N.	Chemistry Central Journal	A validated stability-indicating TLC-densitometric method for the determination of stanozolol in pharmaceutical formulations	2013	7	142		2.55
47	Musharraf, S.G., Bibi, A., Shahid, N., Najam-ul-Haq, M., Ambreen, N., Khan, M., Khan, K.M., Choudhary, M.I., Rahman, A.U.	Chemistry Central Journal	Benzimidazole, coumrindione and flavone derivatives as alternate UV laser desorption ionization (LDI) matrices for peptides analysis	2013	7	77		2.55
48	Musharraf, S.G., Kanwal, N., Arfeen, Q.U.	Chemistry Central Journal	Stress degradation studies and stability-indicating TLC-densitometric method of glycyrrhetic acid	2013	7	9		2.55
49	Iqbal Choudhary, M., Mohammad, M.Y., Musharraf, S.G., Atta-ur-Rahman	Jordan Journal of Pharmaceutical Sciences	Epoxidation of ferutinin by different fungi and antibacterial activity of its metabolite	2013	6		23	0.23
50	Musharraf, S., Shoaib, M., Kumar, D., Najam-ul-Haq, M.	Journal of Planar Chromatography - Modern TLC	Effective separation and simultaneous quantification of permethrin isomers in household products by validated TLC-densitometric method	2013	26		14	0.611
51	Iqbal Choudhary, M., Mohammad, M.Y., Musharraf, S.G., Onajobi, I., Mohammad, A., Anis, I., Shah, M.R., Atta-Ur-Rahman	Phytochemistry	Biotransformation of clerodane diterpenoids by Rhizopus stolonifer and antibacterial activity of resulting metabolites	2013	90		56	2.779
52	Musharraf, S.G., Goher, M., Shahnaz, S., Choudhary, M.I., Atta-Ur-Rahman	Rapid Communications in Mass Spectrometry	Structure-fragmentation relationship and rapid dereplication of Buxus steroidal alkaloids by electrospray ionization-quadrupole time-of-flight mass spectrometry	2013	27		169	2.226

53	Musharraf, S.G., Ali, A., Khan, N.T., Yousuf, M., Choudhary, M.I., Atta-Ur-Rahman	Steroids	Tandem mass spectrometry approach for the investigation of the steroidal metabolism: Structure-fragmentation relationship (SFR) in anabolic steroids and their metabolites by ESI-MS/MS analysis	2013	78		171	2.513
54	Badar, Z., Khan, S., Saifullah, Ali, K., Musharraf, S.G., Choudhary, M.I.	Pakistan Journal of Botany	In vitro and biotransformational studies of aloe barbadensis mill	2013	46		679	0.658
55	Najam-ul-Haq, M., Jabeen, F., Hussain, D., Saeed, A., Musharraf, S.G., Huck, C.W., Bonn, G.K.	Analytica Chimica Acta	Versatile nanocomposites in phosphoproteomics: A review	2012	747		7	4.712
56	Jabeen, F., Hussain, D., Fatima, B., Musharraf, S.G., Huck, C.W., Bonn, G.K., Najam-Ul-Haq, M.	Analytical Chemistry	Silica-lanthanum oxide: Pioneer composite of rare-earth metal oxide in selective phosphopeptides enrichment	2012	84		10180	5.886
57	Musharraf, S.G., Hashmi, N., Choudhary, M.I., Rizvi, N., Usman, A., Atta-Ur-Rahman	Biomarkers	Comparison of plasma from healthy nonsmokers, smokers, and lung cancer patients: Pattern-based differentiation profiling of low molecular weight proteins and peptides by magnetic bead technology with MALDI-TOF MS	2012	17		223	2.016
58	Musharraf, S.G., Ahmed, M.A., Zehra, N., Kabir, N., Choudhary, M.I., Rahman, A.-U.	Chemistry Central Journal	Biodiesel production from microalgal isolates of southern Pakistan and quantification of FAMES by GC-MS/MS analysis	2012	6	149		2.55
59	Musharraf, S.G., Shoaib, M., Kumar, D., Najam-ul-Haq, M.	Chemistry Central Journal	Validated TLC-densitometry method for the simultaneous analysis of pyrethroid insecticides in agricultural and domestic products	2012	6	93		2.55

60	Musharraf, S.G., Naz, S., Najeeb, A., Khan, S., Choudhary, M.I.	Chemistry Central Journal	Biotransformation of perfumery terpenoids, (-)-ambrox® by a fungal culture <i>Macrophomina phaseolina</i> and a plant cell suspension culture of <i>Peganum harmala</i>	2012	6	82		2.55
61	Musharraf, S.G., Shoaib, M., Siddiqui, A.J., Najam-ul- Haq, M., Ahmed, A.	Chemistry Central Journal	Quantitative analysis of some important metals and metalloids in tobacco products by inductively coupled plasma-mass spectrometry (ICP-MS)	2012	6	56		2.55
62	Musharraf, S.G., Gulzar, U.	Chemistry Central Journal	Effective separation and simultaneous analysis of anabolic androgenic steroids (AAS) in their pharmaceutical formulations by a validated TLC- densitometry method	2012	6	54		2.55
63	Musharraf, S.G., Fatima, U., Sultana, R.	Chemistry Central Journal	Stress degradation studies and development of stability-indicating TLC-densitometry method for determination of prednisolone acetate and chloramphenicol in their individual and combined pharmaceutical formulations	2012	6	7		2.55
64	Orhan, I.E., Şener, B., Musharraf, S.G.	Experimental and Toxicologic Pathology	Antioxidant and hepatoprotective activity appraisal of four selected <i>Fumaria</i> species and their total phenol and flavonoid quantities	2012	64		205	1.716
65	Musharraf, S.G., Goher, M., Wafo, P., Kamdem, R.S.T.	International Journal of Mass Spectrometry	Electrospray tandem mass spectrometric analysis of duboscic acid, exploring the structural features of a new class of triterpenoids, dubosane	2012	310		77	2.183
66	Musharraf, S.G., Uddin, J., Akhter, M., Parvez, M., Saifullah, Khan, S., Yousuf, S., Khan, S., Choudhary, M.I.	Journal of Molecular Catalysis B: Enzymatic	Biotransformation of an antimalarial drug, artemether by plant and fungal cell cultures	2012	82		80	2.189

67	Shaheen, F., Rizvi, T.S., Musharraf, S.G., Ganesan, A., Xiao, K., Townsend, J.B., Lam, K.S., Choudhary, M.I.	Journal of Natural Products	Solid-phase total synthesis of cherimolacyclopeptide e and discovery of more potent analogues by alanine screening	2012	75		1882	3.662
68	Musharraf, S.G., Ul Arfeen, Q., Shoaib, M.	Journal of Planar Chromatography - Modern TLC	Development and validation of TLC-densitometric method for the quantification of a steroidal drug, danazol in its pharmaceutical formulations	2012	25		331	0.611
69	Musharraf, S.G., Goher, M., Ali, A., Adhikari, A., Choudhary, M.I., Atta-Ur-Rahman	Steroids	Rapid characterization and identification of steroidal alkaloids in Sarcococca coriacea using liquid chromatography coupled with electrospray ionization quadropole time-of-flight mass spectrometry	2012	77		138	2.513
70	Musharraf, S.G., Bibi, A., Shahid, N., Najam-ul-Haq, M., Khan, M., Taha, M., Mughal, U.R., Khan, K.M.	American Journal of Analytical Chemistry	Acylhydrazide and Isatin Schiff Bases as Alternate UV-Laser Desorption Ionization (LDI) Matrices for Low Molecular Weight (LMW) Peptides Analysis	2012	3		779	1.28
71	Musharraf, S.G., Goher, M., Hussain, A., Choudhary, M.I.	Chemistry Central Journal	Electrospray tandem mass spectrometric analysis of a dimeric conjugate, salvialerifone and related compounds	2012	6	120		2.55
72	Daniel, B., Innocent, E., Mbawambo, Z.H., Musharraf, S.G.	International Journal of Pharma and Bio Sciences	Comparison of mosquito larvicidal activity of Annona squamosa leaves growing in different eco-zones in Tanzania	2011	2	4	566	0.35
73	Yousuf, S., Musharraf, S.G., Iqbal, N., Adhikari, A., Choudhary, M.I.	Acta Crystallographica Section E: Structure Reports Online	3-Dimethylamino-20-(N-methylacetamido)-pregn-5-ene	2011	67			0.347
74	Yousuf, S., Musharraf, S.G., Khan, I., Samiullah, Fun, H.-K.	Acta Crystallographica Section E: Structure Reports Online	Absolute configuration of (2S)-4-(4-hydroxyphenyl)butan-2-ol	2011	67			0.347



75	Musharraf, S.G., Najeeb, A., Hareem, S., Choudhary, M.I.	Biocatalysis and Biotransformation	Biotransformation of 5 $\alpha$ -hydroxycaryophylla-4(12),8(13)-diene with <i>Cunninghamella elegans</i> and <i>Rhizopus stolonifer</i>	2011	29		141	1.24
76	Musharraf, S.G., Ahmed, M.A., Ali, R.A., Choudhary, M.I.	Biocatalysis and Biotransformation	Hydroxylation of (+)-menthol by <i>Macrophomina phaseolina</i>	2011	29		77	1.24
77	Musharraf, S.G., Najeeb, A., Ali, R.A., Ali, A.A., Choudhary, M.I.	Journal of Agricultural and Food Chemistry	Metabolites of the fungistatic agent 2 $\beta$ -methoxycyclovan-9 $\alpha$ -ol by <i>macrophomina phaseolina</i>	2011	59		3234	2.857
78	Musharraf, S.G., Iqbal, N., Ahmed, M.A., Mazhar, S., Choudhary, M.I.	Journal of Liquid Chromatography and Related Technologies	Screening of E-and Z-guggulsterones in the gum-resin exudates of some common plants and method validation in raw, extracted, and pharmaceutical formulations of <i>Commiphora mukul</i> by HPLC	2011	34		2103	0.669
79	Musharraf, S.G., Iqbal, N., Gulzar, U., Ali, A., Choudhary, M.I., Atta-ur-Rahman	Journal of Pharmaceutical and Biomedical Analysis	Effective separation and analysis of E-and Z-guggulsterones in <i>Commiphora mukul</i> resin, guggulipid and their pharmaceutical product by high performance thin-layer chromatography-densitometric method	2011	56		240	3.169
80	Musharraf, S.G., Shoaib, M., Najam-UI-Haq	Journal of Planar Chromatography - Modern TLC	TLC-densitometric method development and validation for the quantification of nicotine in tobacco smoked, sniffing, dipping, and chewing products	2011	24		381	0.611
81	Jan, S., Abbaskhan, A., Musharraf, S.G., Sattar, S.A., Samreen, Resayes, S.I., Al-Othman, Z.A., Al-Majid, A.M., Atta-Ur-Rahman, Choudhary, M.I.	Planta Medica	Three new cycloartane triterpenoids from <i>Astragalus bicuspid</i>	2011	77		1829	2.152

82	Iqbal, A., Azim, M.K., Hashmi, N., Ali, S.A., Musharraf, S.G.	Protein and Peptide Letters	Structural characterization of metalloprotease vibriolysin of cholera pathogen vibrio cholerae	2011	18		287	1.069
83	Musharraf, S.G., Ali, A., Ali, R.A., Yousuf, S., Rahman, A., Choudhary, M.I.	Rapid Communications in Mass Spectrometry	Analysis and development of structure-fragmentation relationships in withanolides using an electrospray ionization quadrupole time-of-flight tandem mass spectrometry hybrid instrument	2011	25		104	2.226
84	Musharraf, S.G., Najeeb, A., Khan, S., Pervez, M., Ali, R.A., Choudhary, M.I.	Journal of Molecular Catalysis B: Enzymatic	Microbial transformation of 5 $\alpha$ -hydroxycaryophylla-4(12), 8(13)-diene with Macrophomina phaseolina	2010	66		156	2.189
85	Choudhary, M.I., Mohammad, M.Y., Musharraf, S.G., Parvez, M., Al-Aboudi, A., Atta-ur-Rahman	Steroids	New oxandrolone derivatives by biotransformation using Rhizopus stolonifer	2009	74		1040	2.513
86	Bulugahapitiya, V.P., Musharraf, S.G.	Ruhuna Journal of Science	Microbial transformation of sesquiterpenoid ketone, (+) Nootkatone by Macrophomia phaseolina	2009	4		13	0
87	Choudhary, M.I., Azizuddin, Jalil, S., Musharraf, S.G., Atta-ur-Rahman	Chemistry and Biodiversity	Fungal transformation of dydrogesterone and inhibitory effect of its metabolites on the respiratory burst in human neutrophils	2008	5		324	1.444
88	Choudhary, M.I., Begum, A., Abbaskhan, A., Musharraf, S.G., Ejaz, A., Atta-ur-Rahman	Chemistry and Biodiversity	Two new antioxidant phenylpropanoids from Lindelofia stylosa	2008	5		2676	1.444
89	Choudhary, M.I., Jan, S., Abbaskhan, A., Musharraf, S.G., Samreen, Sattar, S.A., Atta-ur-Rahman	Journal of Natural Products	Cycloartane triterpenoids from Astragalus bicuspis	2008	71		1557	3.662
90	Ali, L., Musharraf, S.G., Shaheen, F.	Journal of Natural Products	Solid-phase total synthesis of cyclic decapeptide Phakellistatin 12	2008	71		1059	3.662

91	Al-Aboudi, A., Mohammad, M.Y., Musharraf, S.G., Choudhary, M.I., Atta-ur-Rahman	Natural Product Research	Microbial transformation of testosterone by Rhizopus stolonifer and Fusarium lini	2008	22		1498	1.057
92	Choudhary, M.I., Naheed, N., Abbaskhan, A., Musharraf, S.G., Siddiqui, H., Atta-ur-Rahman	Phytochemistry	Phenolic and other constituents of fresh water fern Salvinia molesta	2008	69		1018	2.779
93	Choudhary, M.I., Khan, N.T., Musharraf, S.G., Anjum, S., Atta-ur-Rahman	Steroids	Biotransformation of adrenosterone by filamentous fungus, Cunninghamella elegans	2007	72		923	2.513
94	Nasib, A., Musharraf, S.G., Hussain, S., Khan, S., Anjum, S., Ali, S., Atta-Ur-Rahman, Choudhary, M.I.	Journal of Natural Products	Biotransformation of (-)-ambrox by cell suspension cultures of Actinidia deliciosa	2006	69		957	3.662
95	Choudhary, M.I., Siddiqui, Z.A., Khan, S., Saifullah, Musharraf, S.G., Atta-Ur-Rahman	Zeitschrift fur Naturforschung - Section B Journal of Chemical Sciences	Biotransformation of (-)-caryophyllene oxide by cell suspension culture of Catharanthus roseus	2006	61		197	0.69
96	Choudhary, M.I., Musharraf, S.G., Nawaz, S.A., Anjum, S., Parvez, M., Fun, H.-K., Atta-Ur-Rahman	Bioorganic and Medicinal Chemistry	Microbial transformation of (-)-isolongifolol and butyrylcholinesterase inhibitory activity of transformed products	2005	13		1939	2.923
97	Choudhary, M.I., Musharraf, S.G., Siddiqui, Z.A., Khan, N.T., Ali, R.A., Atta-ur-Rahman	Chemical and Pharmaceutical Bulletin	Microbial transformation of mestranol by Cunninghamella elegans	2005	53		1011	1.228
98	Choudhary, M.I., Siddiqui, Z.A., Musharraf, S.G., Nawaz, S.A., Atta-ur-Rahman	Natural Product Research	Microbial transformation of prednisone	2005	19		311	1.057
99	Choudhary, M.I., Ranjit, R., Atta-ur-Rahman, Devkota, K.P., Musharraf, S.G., Shrestha, T.M.	Phytochemistry	Hydroxylation of the sesterterpene leucosceptrine by the fungus Rhizopus stolonifer	2005	67		439	2.779

100	Choudhary, M.I., Musharraf, S.G., Sami, A., Atta-Ur-Rahman	Helvetica Chimica Acta	Microbial transformation of sesquiterpenes, (-)-Ambrox® and (+)- sclareolide	2004	87		2685	1.138
101	Choudhary, M.I., Musharraf, S.G., Ali, R.A., Atif, M., Atta-ur-Rahman	Zeitschrift fur Naturforschung - Section B Journal of Chemical Sciences	Microbial transformation of antifertility agents, norethisterone and 17 $\alpha$ - ethynylestradiol	2004	59		319	0.69
102	Choudhary, M.I., Musharraf, S.G., Mukhmoor, T., Shaheen, F., Ali, S., Atta-ur-Rahman	Zeitschrift fur Naturforschung - Section B Journal of Chemical Sciences	Isolation of bioactive compounds from Aspergillus terreus	2004	59		324	0.69
103	Choudhary, M.I., Musharraf, S.G., Anjum, S., Rahman, A.A., Fun, H.-K., Atta-Ur-Rahman	Acta Crystallographica Section E: Structure Reports Online	17-Ethynyl-3,17 $\alpha$ -dimethoxy-5 $\beta$ -estra- 1,3,5(10)-triene	2003	59			0.347
104	Choudhary, M.I., Musharraf, S.G., Khan, M.T.H., Abdelrahman, D., Parvez, M., Shaheen, F., Atta-ur-Rahman	Helvetica Chimica Acta	Microbial Transformation of Isolongifolen-4-one	2003	86		3450	1.138
105	Choudhary, M.I., Sultan, S., Yaqoob, M., Musharraf, S.G., Yasin, A., Shaheen, F., Atta-Ur-Rahman	Natural Product Research	Microbial transformation of cortisol and prolyl endopeptidase inhibitory activity of its transformed products	2003	17		389	1.057
106	Choudhary, M.I., Shah, S.A.A., Musharraf, S.G., Shaheen, F., Atta-Ur- Rahman	Natural Product Research	Microbial transformation of dehydroepiandrosterone	2003	17		215	1.057
107	Choudhary, M.I., Musharraf, S.G., Shaheen, F., Atta-Ur-Rahman	Natural Product Letters	Microbial transformation of (+)- androsta-1,4-diene-3,17-dione by Cephalosporium aphidicola	2002	16		377	0.555
108	Musharraf, S.G., Rahman, A., Choudhary, M.I., Sultan, S.	Natural Product Letters	Microbial Transformation of (+)- Adrenosterone	2002	16		345	0.555

**(B)-Conference Proceedings**

**1)-Oral Presentation**

1. Invited speaker at the 4th Hamdard International Conference on Unani Medicine entitled, "Mass Spectrometry Frontiers for the Rapid Dereplication of Medicinal Plants: *Withania somnifera* as a Case Study", organized by Hamdard University from 9-11 January, 2017 at Hamdard University, Karachi.
2. Invited lecture on 14<sup>th</sup> EuAsC<sub>2</sub>S entitled "Untargeted Metabolomics Digging for Cancer Biomarker Search using Mass Spectrometry Machines" organized by HEJ, ICCBS from 15-18 December 2016 at ICCBS, Karachi, Pakistan
3. Invited speaker at the 27th National and 15th International Conference of Chemistry entitled "Untargeted Metabolomics Snapshot of Cancer Samples for Biomarker Search" organized by the Department of Chemistry, University of Malakand, Malakand, Pakistan during August 21-25, 2016.
4. Invited speaker at the 11th International Symposium on Analytical and Environmental Chemistry (ISAEC-2016) entitled, "Probing of molecules in finely powdered plant material to plant extract based on advanced mass spectrometric techniques", organized by National Centre of Excellence in Analytical Chemistry, University of Sindh, Jamshoro, Pakistan., from 7-8 March, 2016.
5. Invited speaker at the Three-day Colloquium on Role of Chemistry in Environmental Protection and Drug entitled, "Digging of Phytochemicals using Mass Spectrometry Machines", Organized by Department of Chemistry, Jinnah University for Women, Karachi, from 1-3 September, 2016.
6. Invited speaker at the 29th International Symposium on the Chemistry of Natural Products (ISCNP-29) and the 9th International Conference on Biodiversity (ICOB-9) entitled, "Mass Spectrometric Dereplication of Natural Products using Structure-Fragmentation Relationship (SFR) Approach", in Izmir-Turkey during September 24-27, 2016.
7. Resource person of the one-day Seminar cum workshop entitled "the Use of Advance Mass Spectrometry Tools in Research" organized by Bahadur Khan Wali University, Quetta, Pakistan on 22nd July, 2016
8. Invited lecture on MMDR entitled "Lung Cancer Metabolomics and Chemometric Analysis: A Promising Approach for Early Diagnosis" organized by PCMD, ICCBS from 12-15 January 2015 at ICCBS, Karachi, Pakistan.
9. Resource Person at NASIC conference cum workshop on "herbal drug development for socio-economic uplift in developing world", delivered lecture on Modern Extraction and Isolation Techniques, organized by The University of Jordan from 6-8 September 2015 at University of Jordan, Amman, Jordan.
10. Invited Lecture on 1st International Conference on Natural Products and Drug Discovery Mass Spectrometric entitled "Dereplication Approach for Plant Extract and Plant Powder: A Case Study on *Withania somnifera*" organized by The University of Jordan from 9-11 September 2015 at University of Jordan, Amman, Jordan.

11. Invited Lecture delivered on “Probing of Molecules in Finely Powdered Plant Materials to Plant Extract Based on Advanced Mass Spectrometric Techniques”, 5-8 October 2015, organized by The Islamia University of Bahawalpur Pakistan.
12. Invited Lecture on Seminar in the use of Mass spectrometry in organic chemistry, entitled “Probing of Molecules Using ESI and MALDI Mass Spectrometry” at 18, November 2015, organized by Department of Chemistry, Urdu Science University.
13. Delivered a lecture entitled, “*Analysis of plant materials by Direct Laser Desorption Ionization (DALDI) Mass spectrometry*” at University of Geneva, Switzerland.
14. Lecture in 2<sup>nd</sup> International conference Driving Research towards Economy IFS, entitled, “*Comprehensive Metabolomics Analysis of Human Plasma by GCMS: A Case Study on Metabolomics Fingerprinting of Lung Cancer Patients*”, from 13-14, November 2014, at Kandy, Sri Lanka.
15. Lecture in NASIC Workshop on Modern Spectroscopic Techniques and their Applications in Structure Determination, entitled, “*Mass Spectrometry for Proteomics and Metabolomics*”, organized by H. E. J. Research Institute of Chemistry, ICCBS, under the auspices of Network of Academies of Science in Islamic Countries (NASIC) from 1-3, December, 2014, at ICCBS, Karachi, Pakistan.
16. Lecture in NASIC Workshop on Modern Spectroscopic Techniques and their Applications in Structure Determination, entitled, “*Application of Tandem Mass Spectrometry in Structural Elucidation*”, organized by H. E. J. Research Institute of Chemistry, ICCBS, under the auspices of Network of Academies of Science in Islamic Countries (NASIC) from 1-3, December, 2014, at ICCBS, Karachi, Pakistan.
17. Invited speaker at 14th Asian Symposium on Medicinal Plants, Spices and Other Natural Products entitled, “High-Throughput Analysis of Plant Metabolites Based on Recent Mass Spectrometric Techniques: Molecules in Finely Powdered Plant Material to Plant Extract”, organized by HEJRIC, ICCBS from 09-12 December at ICCBS, Karachi, Pakistan.
18. Plenary session Speaker at KDU international Research Symposium entitled “Pattern- based Peptide Profiling of Lung Cancer Patients by MALDI-TOF-MS and Chemometrics analysis” from 22-23 August 2013 at General Sir John Kotelawala Defence University, Sri Lanka.
19. Invited presentation entitled, “Metabolomics and Cancer Research” from 23th June 2013 at Institute of Sustainable Halophyte Utilization, University of Karachi, Pakistan.
20. Invited speaker entitled “Mass Spectrometry: from lead compounds identification to disease biomarker identification” from 23 March 2013 at Bahauddin Zakariya University Multan, Pakistan.

21. Invited speaker at International & 24th National Chemistry Conference entitled, "Direct Laser Desorption Ionization Mass Spectrometry (DLDI-MS) for Plant Metabolites Analysis: An Ambient and High-throughput Mass Spectrometry Approach", organized by Chemical Society of Pakistan from October 28-30, 2013 at Institute of Chemical Society Bahauddin Zakariya University Multan, Pakistan.
22. Session speaker at 4th International Symposium-cum-Training course on Molecular Medicine and Drug Research entitled, "Comprehensive Metabolites Profiling of Human Plasma by Applying Different Fractionation Techniques through GCMS", organized by PCMD, ICCBS from January 7-10, 2013 at ICCBS, Karachi, Pakistan.
23. Lecture delivered at 11<sup>th</sup> International & 23<sup>rd</sup> National Chemistry Conference, 15-17<sup>th</sup> October, 2012, University of Peshawar, Peshawar, Pakistan entitled, "Plasma analysis of Non-smokers, Smokers and Lung Cancer Patients for Pattern-Based Differentiation Profiling of Proteins and Peptides by Magnetic Bead Technology with MALDI-TOF MS"
24. Lecture delivered at 13<sup>th</sup> International Symposium on Natural Products Chemistry, 22-25<sup>th</sup> September, 2012, Karachi, Pakistan entitled, "Rapid Dereplication Approach in Natural Products Chemistry Based on Liquid Chromatography Electrospray Tandem Mass Spectrometry (LC-ESI-MS/MS)- A case Study on *Sarcococca Coriacea*".
25. Lecture delivered at BioCon2012-Biochemistry in the Post Genomics Era, 9-12 July 2012 entitled "Pattern-Based Differentiation Profiling of Low Molecular Weight Proteins and Peptides in Plasma Samples of Non-smokers, Smokers and Lung Cancer Patients by Magnetic Bead Technology with MALDI-TOF MS"
26. Invited Lecture delivered at International Conference held in New Delhi, during February 15-18, 2012, entitled TLC Densitometric Method Development and Validation for the Simultaneous Determination of Insects and Pests Controlling Agents, Permethrin, Esbiothrin, Alpha-cypermethrin and Deltamethrin in House-hold Products
27. Lecture delivered at National Sciences Conference, Roadmap of Cutting Edge Technologies, 10<sup>th</sup>-12<sup>th</sup> January 2012, PMAS-Arid Agriculture University, Rawalpindi-Pakistan entitled, "New Classes of Compounds as Alternate Laser Desorption/Ionization Matrices".
28. Lecture delivered at ANRAP-IFFASA workshop on Natural products for Diabetes, 31<sup>st</sup> Dec. 2011-3<sup>rd</sup> January 2012, Dhaka, Bangladesh, entitled, "Mass Spectrometric Advancement for High-throughput Phytochemical Analysis.
29. Lecture delivered at The 1<sup>st</sup> Annual Conference of Middle-Eastern Association for Cancer Research (MEACR), 27<sup>th</sup>-29<sup>th</sup> December 2011, Tanta University, Egypt, entitled, "Plasma analysis of Non-smokers, Smokers and Lung Cancer Patients for Pattern-Based Differentiation Profiling of Proteins and Peptides by Magnetic Bead Technology with MALDI-TOF MS".

30. Lecture delivered at Cancer Conference organized by Shoukhat Khanum Cancer Memorial Hospital, 18-20<sup>th</sup> November, 2011 entitled, "Pattern-Based Differentiation Profiling of Low Molecular Weight Proteins and Peptides in Plasma Samples of Non-smokers, Smokers and Lung Cancer Patients by Magnetic Bead Technology with MALDI-TOF MS".
31. 10<sup>th</sup> International and 22<sup>nd</sup> National Chemistry Conference" held on 21<sup>st</sup>-23<sup>rd</sup> November, 2011 at Agriculture University, Faisalabad. Lecture entitled, "Rapid Dereplication Approach in Natural Product Chemistry based on Liquid Chromatography Electrospray tandem mass spectrometry (LC-ESI-MS/MS)-A Case Study on *Withania somnifera*".
32. 3<sup>rd</sup> Chemistry Conference 2011 on Recent Trends in Chemistry, October 17-19, 2011, Organized by Chemistry Division, PINSTECH entitled HPTLC-Densitometry Mass Spectrometric Utilization in the Chemical Fingerprinting of Herbal Drugs-A Case Study on *Commiphora mukul*
33. Improving Capacities of Research and Identification of Marketable Science and Technology Research Graha Widya Bhakti, 10 -13 October 2011, Serpong - Indonesia entitled "Marketable Science Research of the International Center for Chemical and Biological Sciences (ICCBS)"
34. Afro-Asia workshop on Advance topics in Chemistry 2011 conducted by JNCASR June 3-17, Bangalore (India), funded by TWAS. entitled "Plant Steroids: Chromatographic Method Development and SFR Studies".
35. 3<sup>rd</sup> International Symposium-cum-Training Course on Molecular Medicine and Drug Research (mmdr-3). January 03-06, 2011, entitled "Comparative Profiling of Low Molecular Weight Proteins in Healthy, Smokers and Lung Cancer Plasma by Magnetic Bead Technology with MALDI-TOF MS".
36. 12<sup>th</sup> International Symposium on Natural Product Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan, November 22-25, 2010, entitled "*ESI-QqTOF-MS/MS* Analysis and Development of Structure-Fragmentation Relationship (SFR) in Withanolides".
37. 8<sup>th</sup> International and 20<sup>th</sup> national conference, 15-17<sup>th</sup> February, 2010, organized by Chemical Society of Pakistan, Islamabad, entitled "Chromatographic Method Development and Validation for the Quantification of *E*- and *Z*-Guggulsterones in *Commiphora mukul* from Raw Materials to Finish Products".
38. Workshop on Separation Science and the OMICS, School of Biological Sciences, University of the Punjab, Lahore, Pakistan, April 6-10, 2009, entitled "Applications of Mass Spectrometry in Proteomics".
39. Research Protocol Development Workshop, 8-10, March, 2007, L.E.J. University of Karachi, Pakistan, entitled "Ethics in Research".
40. 7<sup>th</sup> International and 17<sup>th</sup> National Chemistry Conference", 26-28 Feb., 2007, D. I. Khan, Pakistan, entitled "Biotransformation of Bioactive Natural Product".



41. Federation of Asian Chemical Society Symposium and EXCO meeting, March 29-30, 2006, Japan, entitled "Novel Methods for Bioconversion of Bioactive Natural Products".
42. Pak-China Bi-national Workshop on The Pharmacology and Standardization of Herbal Medicines Karachi, Pakistan, Oct. 22-27, 2004, entitled "Use of Analytical Instruments in the Standardization of Herbal Extracts".
43. 3rd International and 13th National Chemistry Conference, Karachi, Pakistan, December 28-31, 2002, entitled "Microbial Transformation of Ambrox and Sclareolide".
44. 2nd International and 12th National Chemistry Conference, Karachi, Pakistan, February 4-6, 2001, entitled "Microbial Transformation of Steroids".

## 2)-Poster Presentations

1. **S. G. Musharraf**, M. I. Choudhary and Atta-ur-Rahman, Microbial Transformation of Bioactive Natural Products: 9<sup>th</sup> International Symposium on National Product Chemistry, Karachi, Pakistan, Jan. 10-13, 2004 (**Award Wining Poster**).
2. S. Adnan Ali Shah, M. I. Choudhary and Atta-ur-Rahman, **S. G. Musharraf**, F. Shaheen, "Solid Phase Hydroxylation of Steroids by *Aspergillus niger*, *Fusarium linni* and Plant Pathogen *Rhizopus stolonifer*", 9<sup>th</sup> International Symposium on National Product Chemistry, Karachi, Pakistan, Jan. 10-13, 2004.
3. Z. A. Siddiqui, S. M. I. Choudhary, **S. G. Musharraf** and M. Atif, "Fungal Transformation of Diosgenin", 9<sup>th</sup> International Symposium on National Product Chemistry, Karachi, Pakistan, Jan. 10-13, 2004.
4. **S. G. Musharraf**, M. I. Choudhary, F. Shaheen and Masood Pervez, "Microbial Transformation of Isolongifolen-9-one", 7<sup>th</sup> Eurasia Conference on Chemical Sciences, Karachi, Pakistan, March 9-12, 2002.
5. **S. G. Musharraf**, M. I. Choudhary and Atta-ur-Rahman, "Microbial Transformation of Antifertility Agents", Ethiestrone and Norethiesterone, Pakistan Bangladesh Bi-National Conference, Karachi, Pakistan, September 24-26, 2002.

## (C)- Patents

- 1 Novel hydroxylated enantiomers of (-) 3a, 6, 6, 9a-tetramethylperhydronaphtho [2, 1-b] furan as perfuming agents derived from a fungal fermentation process. Atta-ur-Rahman, M. I. Choudhary, **S. G. Musharraf**, A. Sami, US Patent # 20120301956, Publication date 2012/11/29

## (D)- Chapter in Books

- 1 "Microbial Transformation of Natural Products-A Tool for the Synthesis of Novel Analogues of Bioactive Substances" Atta-ur-Rahman, Choudhary, M. I., **Musharraf, S. Ghulam**. "Frontiers in Natural Product Chemistry", Bentham Science Publishers, p. 133 (15), Vol. 1, (2005).