

## **PROF. DR. ATTA-UR-RAHMAN**

*Nishan-e-Imtiaz, Hilal-i-Imtiaz, Sitara-i-Imtiaz, Tamgha-i-Imtiaz*

**Advisor to the Prime Minister on Science and Technology  
Federal Minister / Chairman  
Higher Education Commission  
Sector H-9, Islamabad, Pakistan  
President, Pakistan Academy of Sciences  
Coordinator General, COMSTECH  
&  
Director  
International Center for Chemical Sciences  
H. E. J. Research Institute of Chemistry  
Dr. Panjwani Center for Molecular Medicine and Drug Research  
University of Karachi, Karachi-75270, Pakistan**

### **ACADEMIC CAREER**

| DEGREE                                | YEAR | UNIVERSITY                           | DIVISION   |
|---------------------------------------|------|--------------------------------------|--|
| Overseas School Certificate           | 1958 | Cambridge                            | <b>Ist Division (Ist position)</b>   |
| Overseas Higher School Certificate    | 1960 | Cambridge                            | <b>"A" Level (Ist position)</b>  |
| B.Sc. (Hons.)<br>( <i>Chemistry</i> ) | 1963 | Karachi                              | <b>Ist Division (2nd position)</b>   |
| M.Sc.<br>( <i>Organic Chemistry</i> ) | 1964 | Karachi                              | <b>Ist Division (Ist position)</b>   |
| Ph.D.<br>( <i>Organic Chemistry</i> ) | 1968 | Cambridge University (Kings College) | Title of Thesis: "Synthetic Studies in the Indole Alkaloid Field"<br>(Supervisor: Dr. J. Harley Mason) |
| Sc.D.                                 | 1987 | Cambridge University                 | .  |
| D.Sc.                                 | 2003 | Sir Syed Engineering University      | .  |

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|-------|------|--------------------|--|
| D.Sc. | 2004 | Gomal University   |  |
| D.Sc. | 2005 | Karachi University |  |

## EXPERIENCE

| POST                    | YEAR              | INSTITUTION  | NATURE OF DUTIES  |
|-------------------------|-------------------|--|---|
| Lecturer                | 1964              | Karachi University   | Teaching  |
| Commonwealth Scholar    | 1965-68           | Kings College, Cambridge University  | Research for Ph.D.  |
| Assistant Professor     | 1969              | Karachi University   | Teaching/Research   |
| Fellow                  | 1969-73           | Fellow (Don) Kings College, Cambridge University   | Teaching/Research   |
| Associate Professor     | 1974-76           | Postgraduate Institute of Chemistry, University of Karachi, Karachi Pakistan             | Research/Guiding M.Phil., Ph.D. Students  |
| Co-Director (BPS-20)    | 1977-80           | H. E. J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan | a) Research Supervisor of M.Phil/Ph.D. Students<br>b) Research/Administration           |
| D.A.A.D. Fellow         | 1979              | University of Tuebingen, Germany   | Teaching/Research   |
| Professor & Co-Director | 1981-90           | H. E. J. Research Institute of Chemistry, University of Karachi, Karachi-75270, Pakistan | a) Research Supervisor of M.Phil/Ph.D. Students<br>b) Research Administration, Teaching |
| Director                | 1990-till present | -do-   | -do   |

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|---|---|--|---|
| Coordinator General   | 4 <sup>th</sup> July<br>1996-till<br>present        | COMSTech<br>(Organization of Islamic<br>Conference Standing<br>Committee on Scientific<br>and Technological<br>Cooperation), Islamabad | (a) Heading Ministerial<br>Committee comprising<br>57 Ministers of<br>Science & Technology<br>of OIC member<br>countries.<br><br>(b) Promote scientific<br>collaboration<br>between 56 OIC<br>member countries.<br><br>(c) Strengthen institutional<br>infrastructure in the<br>OIC region. |
| Federal Minister for<br>Science &<br>Technology   | 14 <sup>th</sup><br>March,<br>2000 to<br>Oct., 2002 | Ministry of Science and<br>Technology  | Administration/Planning<br>/Development   |
| Federal Minister<br>(In-charge) Ministry<br>of Education  | July 2002<br>to Oct.<br>2002                        | Ministry of Education  | Administration/Planning<br>/Development   |
| Federal Minister<br>(In-charge),<br>Ministry of Science<br>and Technology and<br>Adviser to the Prime<br>Minister for Science<br>and Technology | 2003-04   | Ministry of Science &<br>Technology Government<br>of Pakistan, Islamabad   | Administration/Planning<br>/Development   |
| Federal<br>Minister/Chairman  | Oct. 2002<br>till present                           | Higher Education<br>Commission Government<br>of Pakistan, Islamabad  | Administration/Planning<br>/Development   |
| Advisor to the Prime<br>Minister for Science<br>and Technology for<br>Science and<br>Technology   | November<br>2005-till<br>present                    | Ministry of Science and<br>Technology  | Administration/Planning<br>/Development   |

## RESUME

Prof. Atta-ur-Rahman has over **654 publications** in the fields of organic chemistry including **15 patents, 93 books** and **59 chapters in books** published by major U.S. and European presses and **451 research publications** in leading international journals. On the basis of his researches 67

students have been awarded Ph.D. degrees in various areas of natural product chemistry whose names and titles of thesis are given on pages 16-23.

### (a) Isolation and Structure Elucidation of Bioactive Compounds

Atta-ur-Rahman's work on the isolation and structure elucidation of bioactive substances from medicinal plants as well as marine plants and animals has resulted in the discovery of several hundred new/novel natural products many of which have exhibited exciting biological activities including anti-oxidant, anti-epileptic, anti-leishmania, anti-AIDS, immunomodulating, anti-asthmatic, analgesic, nematocidal and anti-cancer activities. These are exemplified by researches on cholinesterase - inhibiting steroidal alkaloids from *Sarcococca saligna* with potential applications in Alzheimer's disease (No. 573), [*Helv. Chim. Acta*, 87, 439-448 (2004)], new  $\alpha$ -glucosidase inhibitors from *Ferula mongolica* (No. 519), [*Helv. Chim. Acta.*, 84, 2409 (2001)], anti-fungal diterpenoid alkaloids from *Delphinium denudatum* (No. 448), [*J. Nat. Prod.*, 60, 472-474 (1997)], anti-bacterial steroidal alkaloids from *Sarcococca saligna* (No. 476) [*J. Nat. Prod.*, 61, 202-206 (1998)] etc. A number of binary and dimeric alkaloids have also been reported from terrestrial and marine sources.

### (b) Development of New Methods for Structure Elucidation

A new convenient method was developed for the determination of absolute configurations of chiral carboxylic acids,  $\alpha$ -amino acids, amino alcohols, polynucleic acids and ephedrine isomers by partially or totally restricting their conformational flexibility through complexation with trinuclear metal complexes  $[M_3O(O_2CCH_3)_6L_3]^n$  where M = Fe, Cr, Mn, Rh, Ru etc., L = water or pyridine and n = 0 or 1 (No. 404), [*J. Am. Chem. Soc.*, 115, 12533-12544 (1993)]. The method was extended to peptides (No. 490), [*Nat. Prod. Lett.*, 13(2), 131 (1999)]. He has also developed correlations between structures of steroidal alkaloids with their specific rotations (No. 280), [*Tetrahedron*, 42(20), 5747 (1986)].

### (c) Synthetic Transformations of Biologically and Biosynthetically Interesting Compounds

An intriguing challenge in the late 60's / early 70's was the biosynthetic origin of the tetracyclic indole moiety of vinblastine/vincristine, anti-tumor alkaloids of *Catharanthus roseus* (marketed by Ely Lilly & Co. for acute leukaemia in children, Hodgkins disease and other cancers under the trade names of "Velbe" and "Oncovin"). It was believed that such tetracyclic indoles would exist in the plant but no such tetracyclic indoles had been isolated. Atta-ur-Rahman first proposed that vinblastine may arise from a pentacyclic precursor alkaloid such as catharanthine. He demonstrated the conversion of pentacyclic catharanthine into the tetracyclic "cleavamine" moiety in high yields, leading to the first synthetic vinblastine derivative (No. 151), [*Pak. J. Sci. Ind. Res.*, 14(6), 487 (1971)]. This approach (i.e. using catharanthine as the precursor) became the preferred procedure for subsequent synthetic approaches to these anti-leukemic alkaloids. A biomimetic synthesis of vinblastine was subsequently developed and patented (No. 594), [*Pakistan Patent No. 126852*, dated 14-2-1978]. Interesting synthetic transformations/rearrangements discovered include the high yield fragmentation of the hexacyclic 16-epi-19-S-vindolinine to a tricyclic indole (No. 221), [*Heterocycles*, 20(1), 59 (1983)]. The work of the Nobel Laureate Sir Robert Robinson & co-workers on the chemistry of harmaline was also corrected and it was shown that an interesting ring fragmentation occurs with N<sub>b</sub>-acetyl harmaline under certain conditions (No. 152), [*J. Chem. Soc. Perkin Trans. I.*, 736 (1972)] and (No. 153), [*J. Chem. Soc. Perkin Trans. I.*, (5), 731 (1972)]; [*Chem. Abs.*, 76, 127211u (1972)].

**(d) Books & Journals Written or Edited**

Prof. Atta-ur-Rahman has written or edited **93 books**. His first book entitled “*Biosynthesis of Indole Alkaloids*” was published by Oxford University Press, England as Vol. 7 of their prestigious “*International Series of Monographs in Chemistry*” in 1983. His book entitled “*Nuclear Magnetic Resonance Spectroscopy*” published by Springer-Verlag, New York in 1986, was the first text book to have a detailed discussion on 2D-NMR spectroscopy. Its success in USA and Europe prompted it to be translated into Japanese language by two Japanese Professors, Prof. H. Hirota from Tokyo University and Prof. Motoo Tori from Tokushima Bunri University and the Japanese language version was published in May 1988 by Springer-Verlag, Tokyo. His book entitled “*Stereoselective Synthesis in Organic Chemistry*”, published by Springer-Verlag, Germany was appreciated by the Nobel Laureate Sir D.H.R. Barton, who wrote its Foreword and called it “a monumental tome”. His book entitled “*One and Two Dimensional NMR Spectroscopy*” was published by Elsevier Science Publishers, Amsterdam in Netherlands. His book on NMR Spectroscopy entitled “*Solving Problems with NMR Spectroscopy*”, was published by Academic Press, USA, in 1996 the foreword of which was contributed by Nobel Laureate Prof. R.R. Ernst of Switzerland. Prof. Atta-ur-Rahman is the editor of a prestigious series of books being published by Elsevier Science Publishers, Amsterdam, Netherlands. This series is entitled “*Studies in Natural Products Chemistry*” and volumes 1 to 33 of the series (ten volumes on stereoselective synthesis, two on structure elucidation, seven on structure and chemistry and fourteen on bioactive natural products) have been published by Elsevier during 1988-2006. Another series entitled “*<sup>13</sup>C-NMR of Natural Products*” is also being published under the editorship of Prof. Atta-ur-Rahman and Prof. V.U. Ahmad, and two volumes have so far been published by Plenum Press (U.S.A.). Three volumes of another series of books entitled “*Handbook of Natural Products Data*”, have also been published by Elsevier, Netherlands under the editorship of Prof. Atta-ur-Rahman (one of these is co-edited with Prof. V.U. Ahmad).

Prof. Atta-ur-Rahman is currently editing the following Journals:

| S. # | NAME OF JOURNALS  | COUNTRY         |
|------|---|-----------------|
| 1.   | <b>Current Medicinal Chemistry</b> (Editor-in-Chief)            | The Netherlands |
| 2.   | <b>Current Pharmaceutical Design</b> (Executive Editor)         | The Netherlands |
| 3.   | <b>Current Organic Chemistry</b> (Editor-in-Chief)              | The Netherlands |
| 4.   | <b>Mini-Reviews in Medicinal Chemistry</b> (Co-Editor-in-Chief) | The Netherlands |
| 5.   | <b>Mini-Reviews in Organic Chemistry</b> (Editor-in-Chief)      | The Netherlands |

|     |  |                 |
|-----|--|-----------------|
| 6.  | <b>Current Organic Synthesis</b> (Editor-in-Chief)                       | The Netherlands |
| 7.  | <b>Letters in Drug Design and Discovery</b> (Editor-in-Chief)            | The Netherlands |
| 8.  | <b>Natural Product Research</b> (Editor-in-Chief)                        | UK              |
| 9.  | <b>Chemical Society of Pakistan</b> (Honorary Editor-in-Chief)           | Pakistan        |
| 10. | <b>Current Nanoscience</b> (Editor-in-Chief)                             | The Netherlands |
| 11. | <b>Current Pharmaceutical Analysis</b> (Editor-in-Chief)                 | The Netherlands |
| 12. | <b>Mini-Reviews in Organic Chemistry</b> (Editor-in-Chief)               | The Netherlands |
| 13. | <b>Current Bioactive Compounds</b> (Editor-in-Chief)                     | The Netherlands |
| 14. | <b>Bioactive Natural Products</b> (Editor-in-Chief)                      | The Netherlands |
| 15. | <b>Current Chemical Biology</b> (Editor-in-Chief)                        | The Netherlands |
| 16. | <b>Medicinal Chemistry</b> (Editor-in-Chief)                             | The Netherlands |
| 17. | <b>Letter in Organic Chemistry</b> (Editor-in-Chief)                     | The Netherlands |
| 18. | <b>Current Analytical Chemistry</b> (Editor-in-Chief)                    | The Netherlands |
| 19. | <b>Recent Patents on Anti-Cancer Drug Discovery</b> (Editor-in-Chief)    | The Netherlands |
| 20. | <b>Recent Patents on Cardiovascular Drug Discovery</b> (Editor-in-Chief) | The Netherlands |
| 21. | <b>Recent Patents on Anti-Infective Drug Discovery</b> (Editor-in-Chief) | The Netherlands |
| 22. | <b>Recent Patents on CNS Drug Discovery</b> (Editor-in-Chief)            | The Netherlands |

Prof. Atta-ur-Rahman has written or edited the following 93 books:

| S. # | NAME OF BOOKS  | COUNTRY         |
|------|--|-----------------|
| 1.   | <i>"Biosynthesis of Indole Alkaloids"</i> , Atta-ur-Rahman and A. Basha, <b>Clarendon Press</b> , Oxford (1983).   | UK              |
| 2.   | <i>"Pakistan Encyclopaedia Planta Medica,"</i> Vol. I, Atta-ur-Rahman, H.M. Said and V.U. Ahmad, <b>Hamdard Foundation Press</b> , Karachi (1986).   | Pakistan        |
| 3.   | <i>"Natural Product Chemistry"</i> , Atta-ur-Rahman, <b>Springer-Verlag</b> , Heidelberg (1986).   | Germany         |
| 4.   | <i>"New Trends in Natural Products Chemistry"</i> , Atta-ur-Rahman and P.W. Le Quesne, <b>Elsevier Science Publishers</b> , Amsterdam (1986).  | The Netherlands |
| 5.   | <i>"Pakistan Encyclopaedia Planta Medica"</i> , Vol. 2, H.M. Said, V.U. Ahmad and Atta-ur-Rahman, <b>Hamdard Foundation Press</b> , Karachi (1986).  | Pakistan        |
| 6.   | <i>"Nuclear Magnetic Resonance"</i> , Atta-ur-Rahman, <b>Springer-Verlag</b> , New York (1986). Japanese Translation by Prof. Motoo Tori and Prof. Hiroshi Hirota published by <b>Springer-Verlag</b> , Tokyo (1988)]. | USA             |
| 7.   | <i>"Recent Advances in Natural Product Chemistry"</i> , Atta-ur-Rahman, <b>Shamim Printing Press</b> , Karachi (1987).   | Pakistan        |
| 8.   | <i>"Perspectives in Natural Products Chemistry"</i> , Atta-ur-Rahman and P.W. Le Quesne, <b>Shamim Printing Press</b> , Karachi (1988).  | Pakistan        |
| 9.   | <i>"Natural Products Chemistry, IIP"</i> , Atta-ur-Rahman and P. W. Le Quesne, <b>Springer-Verlag</b> , Heidelberg (1988).   | Germany         |
| 10.  | <i>Studies in Natural Products Chemistry "Stereoselective Synthesis"</i> Vol. 1, Part A, Ed. Atta-ur-Rahman, <b>Elsevier Science Publishers</b> , Amsterdam (1988).  | The Netherlands |
| 11.  | <i>Studies in Natural Products Chemistry, "Structure Elucidation"</i> , Vol. 2, Part A, Ed. Atta-ur-Rahman, <b>Elsevier Science Publishers</b> , Amsterdam (1988).   | The Netherlands |
| 12.  | <i>Studies in Natural Products Chemistry, "Stereoselective Synthesis,"</i> Vol. 3, Part B, Ed. Atta-ur-Rahman, <b>Elsevier Science Publishers</b> , Amsterdam (1989).  | The Netherlands |
| 13.  | <i>Studies in Natural Products Chemistry, "Stereoselective Synthesis"</i> , Vol. 4, Part C, Ed. Atta-ur-Rahman, <b>Elsevier Science Publishers</b> , Amsterdam (1989).   | The Netherlands |

14. *Studies in Natural Products Chemistry*, "Structure Elucidation". Vol. **5**, Part B, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1989). **The Netherlands**
15. "One and Two Dimensional Nuclear Magnetic Resonance Spectroscopy", Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1989). **The Netherlands**
16. "Pakistan Encyclopaedia Planta Medica", Vol. **3**, Ed. V.U. Ahmad, and Atta-ur-Rahman, **U.G.C. Press**, Islamabad (1989). **Pakistan**
17. "Frontiers in Natural Products Chemistry", Ed. Atta-ur-Rahman, **Shamim Printing Press**, Karachi (1990). **Pakistan**
18. *Studies in Natural Products Chemistry*, "Stereoselective Synthesis", Vol. **6**, Part D, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1990). **The Netherlands**
19. *Studies in Natural Products Chemistry*, "Structure and Chemistry", Vol. **7**, Part A, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1990). **The Netherlands**
20. *Handbook of Natural Products Data*, "Diterpenoid and Steroidal Alkaloids", Vol. **1**, Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1990). **The Netherlands**
21. *Studies in Natural Products Chemistry*, "Stereoselective Synthesis", Vol. **8**, Part E, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1991). **The Netherlands**
22. *Studies in Natural Products Chemistry*, "Structure and Chemistry" Vol. **9**, Part B, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1991). **The Netherlands**
23.  $^{13}\text{C-NMR}$  of Natural Products, "Monoterpenes and Sesquiterpenes", Vol. **1**, Atta-ur-Rahman and V.U. Ahmad, **Plenum Press**, New York (1992). **USA**
24.  $^{13}\text{C-NMR}$  of Natural Products, "Diterpenes", Vol. **2**, Atta-ur-Rahman and V.U. Ahmad, **Plenum Press**, New York (1992). **USA**
25. *Studies in Natural Products Chemistry*, "Stereoselective Synthesis", Vol. **10**, Part F, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1992). **The Netherlands**
26. *Studies in Natural Products Chemistry*, "Stereoselective Synthesis", Vol. **11**, Part G, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1992). **The Netherlands**

27. "*Advances in Natural Product Chemistry*", Ed. Atta-ur-Rahman, Proceedings of the Fifth International Symposium and Pakistan-US Binational Workshop on Natural Product Chemistry, Karachi, 4-9 January, 1992, **Harwood Academic Publishers**, Chur (1992). **Switzerland**
28. "*Current Frontiers in Natural Product Chemistry*" Ed. Atta-ur-Rahman, Proceedings of the Fifth International Symposium and Pakistan-U.S. Binational Workshop on Natural Product Chemistry, Karachi, Pakistan, January 5-9, 1992, **Harwood Academic Publishers**, Amsterdam (1992). **UK**
29. "*Studies in Natural Products Chemistry, Stereoselective Synthesis*", Vol. **12**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1993). **The Netherlands**
30. Studies Natural Products Chemistry, "*Bioactive Natural Products*", Vol. **13**, Part A, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1993). **The Netherlands**
31. "*Stereoselective Synthesis in Organic Chemistry*", Atta-ur-Rahman and Z. Shah, **Springer-Verlag**, New York (1993). **USA**
32. "*Studies in Natural Product Chemistry, Stereoselective Synthesis*", Vol. **14**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1994). **The Netherlands**
33. "*Handbook of Natural Products Data: Pentacyclic Triterpenes*" by V.U. Ahmad and Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1994). **The Netherlands**
34. "*Handbook of Natural Products Data, Isoquinoline Alkaloids*", Vol. **3**, Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1994). **The Netherlands**
35. "*Handbook of Natural Products Data, Pentacyclic Triterpenoids*", Vol. **2**, Viqar Uddin Ahmad and Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1994). **The Netherlands**
36. "*Pure and Applied Chemistry*", Ed. Atta-ur-Rahman, *Proceedings of the 19<sup>th</sup> International Symposium on the Chemistry of Natural Products*, 16-20 January, 1994, **Blackwell Scientific Publications**, Oxford, Vol. **66** (10/11), 1967, (1994). **UK**
37. "*Studies in Natural Products Chemistry, Structure and Chemistry*", Vol. **15**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1995). **The Netherlands**
38. "*Studies in Natural Products Chemistry, Stereoselective Synthesis*", Vol. **16**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1995). **The Netherlands**

39. “*Studies in Natural Products Chemistry, Structure and Chemistry*”, Vol. **17**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1995). **The Netherlands**
40. “*Year Book of Asymmetric Synthesis 1991*”, Khurshid Zaman, Atta-ur-Rahman and M. Saleh Shekhani, **Kluwer Academic Publishers**, Dordrecht (1995). **The Netherlands**
41. “*Recent Discoveries in Natural Products Chemistry*”, Eds. Atta-ur-Rahman, M.I. Choudhary and M.S. Shekhani, **Elite Publishers**, Karachi (1995). **Pakistan**
42. “*Solving Problems with Nuclear Magnetic Resonance Spectroscopy*” Atta-ur-Rahman and M.I. Choudhary, **Academic Press**, New York (1996). **USA**
43. “*Modern Methods in Carbohydrate Synthesis*”, Ed. S.H. Khan and R.A. O’Neill, Series Editor Atta-ur-Rahman, Vol. **1**, **Harwood Academic Publishers**, Amsterdam (1996). **The Netherlands**
44. “*Progress in Medicinal Chemistry*”, Ed. M.I. Choudhary, Vol. **1**, Ed. Atta-ur-Rahman, Series **Harwood Academic Publishers**, Amsterdam (1996). **The Netherlands**
45. “*Biological Inhibitors*”, Ed. M.I. Choudhary, Ed. Atta-ur-Rahman, Vol. **2**, Series **Harwood Academic Publishers**, Amsterdam (1996). **The Netherlands**
46. “*Studies in Natural Products Chemistry, Structure and Chemistry*”, Vol. **18**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1996). **The Netherlands**
47. “*Studies in Natural Products Chemistry, Structure and Chemistry*”, Vol. **19**, Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1995). **The Netherlands**
48. “*Indole Alkaloid*”, Eds. Atta-ur-Rahman and A. Basha, Vol. **2**, **Harwood Academic Publishers**, Amsterdam (1998). **The Netherlands**
49. “*New Trends in Natural Product Chemistry*” Ed. Atta-ur-Rahman and M. I. Choudhary, **Harwood Academic Publishers**, Amsterdam (1998). **The Netherlands**
50. “*New Advances in Analytical Chemistry*”, Ed. Atta-ur-Rahman, Vol. **1 & 2**, **Harwood Academic Publishers**, Amsterdam (1999). **The Netherlands**
51. “*Manual of Bioassay Techniques for Natural Product Chemists*”, Eds. Atta-ur-Rahman, M.I. Choudhary and W. Thomsen, **Harwood Academic Publishers**, Amsterdam (1999). **The Netherlands**

52. *“Studies in Natural Product Chemistry, (Structure and Chemistry)”*, Vol. **20**, Ed. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (1999). **The Netherlands**
53. *“Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications”*, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **I**, Islamabad (1997). **Pakistan**
54. *“Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications”*, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **II**, Islamabad (1998). **Pakistan**
55. *“Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications”*, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **III**, Islamabad (1999). **Pakistan**
56. *“Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications”*, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **IV**, Islamabad (2000). **Pakistan**
57. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Vol. **21**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2000). **The Netherlands**
58. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Eds. Vol. **22**, Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2000). **The Netherlands**
59. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Vol. **23**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2000). **The Netherlands**
60. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Vol. **24**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2001). **The Netherlands**
61. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Vol. **25**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2001). **The Netherlands**
62. *“Recent Advances in Natural Product Chemistry*, Eds. Atta-ur-Rahman and M.I. Choudhary, **Harwood Academic Publishers**, Amsterdam (1987). **The Netherlands**
63. *“Studies in Natural Products Chemistry, (Bioactive Natural Products)”* Vol. **26**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, London (2002). **The Netherlands**
64. *“New Advances in Analytical Chemistry”*, Ed. Atta-ur-Rahman, Vol. **3**, **Taylor and Francis**, London (2002). **UK**

65. “*Studies in Natural Products Chemistry, (Bioactive Natural Products)*” Vol. **27**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, London (2002). **UK**
66. “*Studies in Natural Products Chemistry, (Bioactive Natural Products)*” Vol. **28**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2002). **UK**
67. “*Natural Product Chemistry At the Turn of the Century*”, Eds. Atta-ur-Rahman, M. Iqbal Choudhary, K. M. Khan, **Print Arts Publishers**, Karachi (2002). **Pakistan**
68. “*Studies in Natural Products Chemistry, (Bioactive Natural Products)*” Vol. **29**, Eds. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (2003). **The Netherlands**
69. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **V** (Part A) (2002). **Pakistan**
70. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **V** (Part B) (2002). **Pakistan**
71. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **V** (Part C) (2002). **Pakistan**
72. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **VI** (Part A) (2002). **Pakistan**
73. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **VI** (Part B) (2003). **Pakistan**
74. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Secretariat, Vol. **VII** (Part A) (2003). **Pakistan**
75. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **VII** (Part B) (2003). **Pakistan**
76. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **VII** (Part C) (2003). **Pakistan**
77. “*Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications*”, Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. **VIII** (Part A) (2004). **Pakistan**

78. "Directory of Active Scientists in OIC Members States and Their Recent Scientific Publications", Eds. A. Dar and Atta-ur-Rahman, COMSTECH Islamabad, Vol. VIII (Part B) (2004). Pakistan
79. "Frontiers in Medicinal Chemistry (online)" Eds. Atta-ur-Rahman, Allan B. Reitz, M. Iqbal Choudhary and Cheryl P. Kordik, Vol. 1, Bentham Science Publishers, Amsterdam (2004). The Netherlands
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83. "Frontiers in Organic Synthesis", Edt. Atta-ur-Rahman, Bentham Science Publishers, Amsterdam (2005). The Netherlands
84. "Frontiers in Drug Design and Discovery", Edt. B. Coldwell, Atta-ur-Rahman and B. Springer, Bentham Science Publishers, Amsterdam (2005). The Netherlands
85. "Frontiers in Medicinal Chemistry" Edt. Atta-ur-Rahman, Allan B. Reitz, M. Iqbal Choudhary and Cheryl P. Kordik, Vol. II, Bentham Science Publishers, Amsterdam (2005). The Netherlands
86. "Frontiers in Natural Product Chemistry" Edt. Atta-ur-Rahman, M. Iqbal Choudhary and K. M. Khan, Bentham Science Publishers, Amsterdam (2005). The Netherlands
87. "Studies in Natural Products Chemistry, (Bioactive Natural Products)" Vol. 31, Edt. Atta-ur-Rahman, Elsevier Science Publishers, Amsterdam (2005). The Netherlands
88. "Studies in Natural Products Chemistry, (Bioactive Natural Products)" Vol. 32, Edt. Atta-ur-Rahman, Elsevier Science Publishers, Amsterdam (2005). The Netherlands
89. "Studies in Natural Products Chemistry, (Bioactive Natural Products)" Vol. 33, Edt. Atta-ur-Rahman, Elsevier Science Publishers, Amsterdam (2006). The Netherlands
90. "Frontiers in Medicinal Chemistry" Edt. Atta-ur-Rahman, Allan B. Reitz, M. Iqbal Choudhary and Cheryl P. Kordik, Vol. III, Bentham Science Publishers, Amsterdam (2006). The Netherlands

91. “*Frontiers in Organic Chemistry*”, Edt. Atta-ur-Rahman, **Bentham Science Publishers**, Amsterdam (2006). **The Netherlands**
92. “*Frontiers in Drug Design and Discovery*”, Edt. B. Coldwell, Atta-ur-Rahman, B. Springer and M. I. Choudhary, **Bentham Science Publishers**, Amsterdam (in press). **The Netherlands**
93. “*Studies in Natural Products Chemistry, (Bioactive Natural Products)*” Vol. **34**, Edt. Atta-ur-Rahman, **Elsevier Science Publishers**, Amsterdam (in press). **The Netherlands**

**(e) Contributions to the Development of Science & Technology in Pakistan and the Region**

Prof. Atta-ur-Rahman has made major contributions to the development of science & technology in Pakistan and in other regional countries as given below:

**1. Contributions to Development of H. E. J. Research Institute of Chemistry, University of Karachi**

Prof. Atta-ur-Rahman has contributed to the development of a world class centre in natural product chemistry H.E.J. Research Institute of Chemistry in Pakistan. He won grants of 1 million pounds from Overseas Development Authority (UK), 9 million dollars from JICA (Japan), 3.5 million DM from GTZ (Germany), 7 million US dollars from Office of Naval Research (USA) and 15 million US dollars from Pakistan with which the Centre has been transformed to one of the best facilities for research on natural product chemistry anywhere. The facilities include 12 superconducting NMR spectrometers (600 MHz-300 MHz), seven mass spectrometers, X-ray diffractometers, FT-IR, elemental microanalysers, gas phase amino acid sequencer, gas chromatographs, HPLC systems,  $\beta$ -counter,  $\gamma$ -counters, polygraphs and a considerable amount of pharmacology and pilot plant equipment etc. The instrumentation services are being made available to other chemistry institutions in the country, thus fulfilling a vital need. The Centre now serves as an international centre for training scientists from Third World countries. Several hundred scientists have been trained in the centre (including 80 German students) and over 60 joint research publications have resulted from these collaborations of his research group with scientists in Afro-Asia-countries and technologically advanced countries. The Centre was awarded the Islamic Development Bank Prize for “The Best Science Research Institute in the Islamic World” in 2004.

**2. Contributions to the Promotion of Science and Technology in Pakistan**

In March 2000 Atta-ur-Rahman was appointed as the Federal Minister for Science and Technology in the Government of Pakistan while continuing to be the Director of HEJ Research Institute of Chemistry, University of Karachi. He managed to convince the government to make science and technology a priority area of national focus and the budget for science and technology in Pakistan was increased by 6000% from 2001 to 2003. In October 2002 he was appointed as the Chairman, Higher Education Commission. The budget for higher education was similarly increased by 1200% from 2002 to 2004. He has launched over three hundred national projects including:

1. Launching a digital library which now provides free nation-wide access to 20,000 journals (full text and abstracts) free of charge to all colleges, universities and other academic and research institutions in Pakistan.
2. Initiating a revolutionary new program of performance-based tenure-track appointments under which salaries of teachers have been increased so that they are 3 to 4 times those of Federal Ministers in the Government.
3. Providing free access (nation-wide) to scientists/engineers anywhere in the country to sophisticated instruments installed in any institute in Pakistan.
4. Establishing over a dozen new Universities and degree awarding institutions during the last three years.
5. Placing a satellite in space (Paksat-1) which is now used for distance learning: two new digital television channels have been launched under the Virtual University and two more will start functioning within the next eight to ten months exclusively for higher education on this satellite.
6. Launching US 300 million dollars annual support program for upgradation of Universities and R & D Institutes.
7. Establishing National Commissions on Biotechnology and Nanotechnology and funding 58 projects worth over US dollars 20 million in these fields
8. Making major funds available for research grants
9. National Ph.D. output increased from the present 150 per year to 300 per year and now being further increased 1500 per year over the next five years through award of 1000 postgraduate scholarships annually.
10. Linked 56 universities with fiber and initiating a nation-wide lectureship program, allowing lectures to be given in one part of the country and inter-actively attended to in other parts of the country.

Till 1979, Pakistan had no national chemistry journal. In his capacity as the founding Honorary Editor, Professor Atta-ur-Rahman began publishing Pakistan's first international chemistry journal, "Journal of the Chemical Society of Pakistan" which has provided a medium in which national and regional research efforts in various disciplines of chemistry can be reflected. As President of the Chemical Society and later its Patron he has taken many steps to promote chemistry in Pakistan including the organization of Pakistan's first IUPAC Conference on Natural Products in 1994.

The contributions of Atta-ur-Rahman have been recognised by numerous national & international honorary degrees, awards & prizes including the degree of Doctor of Science (Sc.D.) by the University of Cambridge in 1987 and the UNESCO Science Prize (1999).

### **3. *Promotion of Science and Technology in the Region***

In his capacity as the head (Coordinator General) of COMSTECH which is a Committee of 57 Ministers of Science and Technology of OIC (Organisation of Islamic Conference) member countries Atta-ur-Rahman has initiated a large number of projects in the region which include:

1. Research grants given to young scientists (87 grants in 26 countries presently been given): countries benefiting are Algeria, Bangladesh, Benin, Burkinafaso, Cameroon, Egypt,

- Gobon, Gambia, Indonesia, Iran, Jordan, Lebanon, Malaysia, Mali, Mauritania, Morocco, Mozambique, Niger, Nigeria, Pakistan, Senegal, Sierra Leone, Sudan, Togo, Tunisia and Uganda.
2. A free scientific literature search has been initiated under which searches are made in abstracts of 6000 scientific journals and data provided within 48 hours by email to any individual requesting for literature search from 57 OIC member countries.
  3. A database of active scientists of OIC member countries has been edited by him (and Dr. Ahsana Dar) which presents their recent research publications. Seven volumes have so far been published covering all countries with names beginning with alphabet "A" to alphabet "N". This database is also accessible through the internet (website address: www.comstech.org.pk).
  4. Atta-ur-Rahman has established a Network of 45 libraries in 15 countries containing 28,000 journals and copies of complete articles are available to the countries participating in this Network.
  5. Atta-ur-Rahman has initiated a programme under which students belonging to 18 least developed OIC member countries (Afghanistan, Benin, Burkina Faso, Comoros, Djibouti, Gambia, Guinea, Guinea-Bissau, Maldives, Mali, Mauritania, Mozambique, Niger, Sierra Leone, Somalia, Chad, Uganda and Yemen) are awarded M.Sc. scholarships in various fields of Science and Technology for study in relatively more advanced OIC member countries.
  6. A Network of Academies of Sciences in 17 OIC member countries (NASIC) has been established. Atta-ur-Rahman, who is the President of the Pakistan Academy of Sciences, has been elected as its President. A large number of collaborative programmes have been initiated under this Network.

Atta-ur-Rahman's efforts to establish a research institute of international caliber in a developing country and his research contributions have been praised by 5 Nobel Laureates (J.-M. Lehn, R.R. Ernst, Sir D.H.R. Barton, H.C. Brown and R. Noyori) in their nominations for various prizes.

Prof. Dr. Atta-ur-Rahman's contributions to promote Science & Technology have attracted the following comments in an editorial in "*Nature*" [(427, 379 (29 January 2004)].

*Quote: "Rahman has convinced Musharraf to prise open his war-chest, and a deluge of money and new initiatives has poured out. Consider the following: the ministry of science and technology's annual budgets increased 60-fold compared with 1999; researchers have an opportunity to more than double their earnings if they publish more in peer-reviewed journals; funds have been released for many more Ph.Ds. to be trained at home and abroad; plans are well under way for a free digital library for all educational institutions; there is a new scheme to attract researchers from overseas to work in Pakistan; and the cabinet recently approved a plan to use science and technology to catalyse a doubling in the country's rate of growth of gross domestic product before 2020." Unquote.*

### **Students who completed Ph.D. Studies under the Supervision of Prof. Atta-ur-Rahman:**

| S. # | NAME OF STUDENT | YEAR | TITLE OF Ph.D. THESIS |
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| 1.  | Miss Nighat Waheed   | 1980 | Synthetic studies in the field of indole alkaloids.  |
| 2.  | Miss Sadiqa Firdous  | 1981 | Synthetic studies in the field of indole alkaloids.  |
| 3.  | Miss Maryam Ghazala  | 1981 | Synthetic studies in the field of indole alkaloids.  |
| 4.  | Miss Kaneez Fatima   | 1981 | Isolation and structure elucidation of alkaloids from <i>Rhazya stricta</i> .  |
| 5.  | Mr. Mohammad Bashir  | 1983 | Isolation, structure and synthetic studies on $\beta$ -carbolines and <i>Iboga</i> alkaloid systems.                                   |
| 6.  | Miss Mumtaz Sultana  | 1983 | Synthetic studies in the field of heterocyclic chemistry.  |
| 7.  | Mr. Akbar Ali Ansari | 1983 | Isolation and characterization of chemical constituents of <i>Berberis aristata</i> , <i>Fagonia indica</i> and <i>Daucus carota</i> . |
| 8.  | Mr. Sohail Malik     | 1985 | Studies on the chemical constituents of <i>Rhazya stricta</i> and <i>Nigella sativa</i> .  |
| 9.  | Mr. Nader Doulatbadi | 1985 | Isolation and structural determination of some of indole alkaloids of <i>Ervatamia coronaria</i> .                                     |
| 10. | Mr. Irshad Ali       | 1985 | Isolation and structural studies on the alkaloids of <i>Catharanthus roseus</i> .  |
| 11. | Miss Mehr-un-Nisa    | 1985 | Investigation of the chemical constituents of <i>Calotropis procera</i> and related plants.  |
| 12. | Miss Anjum Muzaffar  | 1986 | Isolation and structural studies on the alkaloids of <i>Ervatamia coronaria</i> .  |
| 13. | Miss Sajida Khanum   | 1986 | Isolation and structural studies on alkaloids of <i>Rhazya stricta</i> and synthetic studies in the field of pyridyl indoles.          |

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| 14. | Miss. Kishwer Jahan   | 1986 | Isolation and structural studies on <i>Cocculus pendulus</i>   |
| 15. | Mr. M. I. Choudhary   | 1987 | Isolation and structural studies on the alkaloids of some indigenous medicinal plants <i>Buxus papillosa</i> , <i>Catharanthus roseus</i> and <i>Cissampelos pareira</i> . |
| 16. | Mr. Khisal Ahmad Alvi | 1987 | Studies in the chemical constituents of <i>Alstonia scholaris</i> and <i>Cleome brachycarpa</i> .  |
| 17. | Mr. Habib-ur-Rehman   | 1988 | Isolation and structural studies on the <i>Rhazya stricta</i> and related medicinal plants.  |
| 18. | Miss Talat Fatima     | 1990 | Isolation, structure elucidation and synthetic studies in the field of indole alkaloids.   |
| 19. | Miss Khurshid Zaman   | 1990 | Studies on the chemical constituents of roots of <i>Rhazya stricta</i> Decaisne.   |
| 20. | Miss Zahida Iqbal     | 1990 | Studies on the alkaloids of <i>Buxus papillosa</i> and other related plants.   |
| 21. | Mr. Munawer Qureshi   | 1991 | Isolation and structural studies on the chemical constituents of <i>Rhazya stricta</i> , <i>Alstonia macrophylla</i> and related medicinal plants.                         |
| 22. | Mr. Sultan Ahmad      | 1991 | Isolation and structural studies on the chemical constituents of <i>Tinospora malabarica</i> and <i>Nigella sativa</i> .   |
| 23. | Miss Azra Perveen     | 1991 | Studies on the chemical constituents of <i>Petchia ceylanica</i> and other related plants.   |
| 24. | Miss Shahnaz Perveen  | 1991 | Isolation and structural studies and synthetic modification of alkaloids of <i>Sphaeranthus indicus</i> and <i>Catharanthus roseus</i> .                                   |

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| 25. | Mr. Dildar Ahmad     | 1991 | Isolation and structural studies on the chemical constituents of <i>Buxus</i> species.   |
| 26. | Mr. Zahir Shah       | 1991 | Studies on the chemical constituents of <i>Stokeyia indica</i> , <i>Ervatamia coronaria</i> and <i>Haplophyllum</i> species                                  |
| 27. | Mr. Muzaffar Alam    | 1991 | Isolation and structural studies on the chemical constituents of <i>Catharanthus roseus</i> and <i>Buxus papillosa</i> .                                     |
| 28. | Miss Aisha Nelofar   | 1992 | Isolation and structural studies on <i>Cocculus pendulus</i> and some other related plants.  |
| 29. | Mr. Ali Abbas        | 1992 | Studies in the chemical constituents of <i>Alstonia</i> species, <i>Laurencia pinnatifida</i> and related marine organisms.                                  |
| 30. | Mr. S. Arshad Jamal  | 1993 | Phytochemical and structural studies on the chemical constituents of <i>Polygonum equistiforme</i> , <i>Withania somnifera</i> and related medicinal plants. |
| 31. | Miss Farzana Nighat  | 1993 | Phytochemical and structural studies on the chemical constituents of <i>Alstonia macrophylla</i> and <i>Solanum albicaule</i> .                              |
| 32. | Mr. Hussain Ahmad    | 1993 | Studies on the constituents of <i>Berberis waziristanica</i> and CD studies of chiral metal complexes.   |
| 33. | Mrs. Naheed Sultana  | 1994 | Studies on the isolation of new potentially bioactive agents from <i>Rhazya stricta</i> , <i>Fritillaria persica</i> and related plants.                     |
| 34. | Mr. Mohd. Saleh Ajaz | 1994 | Phytochemical studies of <i>Sophora griffithii</i> , <i>Petchia ceylanica</i> and <i>Zizyphus lotus</i> and synthesis of asarone analogues.                  |

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| 35. | Mr. Habib Nasir     | 1994 | Isolation and structural studies on the chemical constituents of <i>Buxus papillosa</i> and the related plants.   |
| 36. | Mr. Khalid Bhatti   | 1994 | Isolation and structural studies on the chemical constituents of <i>Fumaria indica</i> and related medicinal plants.  |
| 37. | Mrs. Rahat Sultana  | 1995 | Isolation and structural elucidation of chemical constituents of the biologically active fractions of <i>Veratrum</i> studies.  |
| 38. | Mr. Erfan Asif      | 1995 | Phytochemical investigations of the chemical constituents of <i>Buxus</i> species and synthesis with metal complexes.   |
| 39. | Mr. Syed Safdar Ali | 1995 | Studies on the chemical constituents of <i>Tinospora malabarica</i> , <i>Buxus papillosa</i> and <i>Fumaria indica</i> ; synthetic development of new protecting group of arginine. |
| 40. | Miss Samina Naz     | 1995 | Phytochemical and structural studies on the chemical constituents of <i>Buxus sempervirens</i> and <i>Buxus papillosa</i> .   |
| 41. | Mrs. Samina Abbas   | 1995 | Studies on the chemical constituents of <i>Rhazya stricta</i> , <i>Mitragyna parifolia</i> and <i>Withania somnifera</i> .  |
| 42. | Mrs. Durre Shahwar  | 1997 | Isolation and structural studies on the nematicidal constituents of <i>Datura fastuosa</i> and chemical constituents of <i>Bongardia chrysogonum</i> and <i>Rhazya stricta</i> .    |

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| 43. | Mr. Abdul Rauf Raza     | 1997 | Phytochemical Studies on <i>Phyllanthus fraternus</i> , <i>Phyllanthus amarus</i> and Microbial Transformation of Natural Products.   |
| 44. | Mr. Afgan Farooq        | 1998 | Structural synthesis and biotransformations studies of some steroidal alkaloids, steroids and sesquiterpenes.   |
| 45. | Mrs. Farhana Noor-e-Ain | 1998 | Phytochemical and structural studies on the chemical constituents of <i>Buxus longifolia</i> and related plants.  |
| 46. | Miss Amber Nasreen      | 1998 | Biosynthesis of colchicines, phytochemical and structural studies on the chemical constituents of <i>Delphinium denudatum</i> .   |
| 47. | Mrs. Sarwat Jahan       | 1998 | Phytochemical studies on the chemical constituents of <i>Commiphora mukul</i> and related medicinal plants of Pakistan.   |
| 48. | Mrs. Shazia Anjum       | 1999 | Isolation and structural studies on the chemical constituents of <i>Sarcococca saligna</i> and <i>Phlomis stewartii</i> and studies on rearrangement of benzisoxazole $\beta$ -carboline to indolocinnoline derivative. |
| 49. | Mr. Abdul Majeed Khan   | 2000 | Phytochemical and structural studies on the chemical constituents of <i>Taxus wallichiana</i> , <i>Tanacetum gracile</i> , <i>Jolyana laminarioides</i> and other marine algae.   |
| 50. | Mr. M. Ashraf           | 2000 | Phytochemical Studies on <i>Taxus Wallichiana</i> Zucc, <i>Podophyllum emodi</i> var. <i>hexandrum</i> and related medicinal plants   |

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| 51. | Mr. Muhammad Shahid Malik | 2000 | Bioactive chemical constituents of <i>Jatropha gossypifolia</i> , <i>Pteleopsis hylodendron</i> and <i>Gossypium herbaceum</i> .   |
| 52. | Ms. Nighat Sultana        | 2001 | Phytochemical and structural studies on the chemical constituents of <i>Adhadota vasica</i> , <i>Sarcococca saligna</i> and <i>Skimmia laureola</i>                                |
| 53. | Ms. Uzma Qureshi          | 2001 | Phytochemical studies on the constituents of <i>Sophora griffithii</i>   |
| 54. | Mr. Usman Ghani           | 2001 | Studies on the inhibition of protease tyrosinase and related enzymes by natural products and synthetic compounds   |
| 55. | Mr. Zaheer ul Haq Qasmi   | 2002 | Isolation and structural studies on the chemical constituents of <i>Sarcococca saligna</i> and <i>Cryptostegia grandiflora</i>   |
| 56. | Mr. Safdar Hayat          | 2003 | Isolation and structural characterization of secondary metabolites from brown algae <i>Spatoglossum variable</i> and development of some useful methodologies in organic synthesis |
| 57. | Ms. Shahida Shujaat       | 2003 | Biochemical studies on new inhibitors of $\beta$ -glucuronidase and hepatotoxic activity of some chemical constituents   |
| 58. | Ms. Fatima Khanzadi       | 2003 | Phytochemical studies on the chemical constituents of <i>Erythroxylum moonii</i> and <i>Fritillaria imperialis</i>   |
| 59. | Ms. Nazhat Fatima         | 2003 | Phytochemical studies on <i>Aconitum falconer</i> and related medicinal plants   |

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| 60. | Mr. Shakil Ahmed           | 2003 | Isolation and structural elucidation of chemical constituents from <i>Fumaria indica</i> , <i>Ferula oopoda</i> and <i>Withania somnifera</i>   |
| 61. | Ms. Aniq Naz               | 2003 | Studies on the chemical constituents of <i>Withania coagulans</i> and <i>Boswellia dalzielli</i>  |
| 62. | Mrs. Zareen Amtul          | 2003 | Studies on urease enzyme and Alzheimer's disease.   |
| 63. | Mr. Muhammad Nadeem Akhtar | 2004 | Isolation and structural elucidation of the chemical constituents of <i>Fritillaria imperialis</i> and <i>Anogeissus schimperi</i>  |
| 64. | Ms. Shama Nasim            | 2004 | Phytochemical studies on <i>Iris species</i> and synthesis of different heterocyclic compounds  |
| 65. | Ms. Fareeda Feroz          | 2004 | Phytochemical investigations on the chemical constituents of <i>Sarcococca saligna</i> , <i>Ficus religiosa</i> and related medicinal plants and synthetic studies towards interesting new heterocyclic compounds |
| 66. | Ms. Humera Naz             | 2005 | Bioassay-directed isolation of natural products from <i>Boswellia papyrifera</i> , <i>Paris polyphylla</i> , <i>Sophora mollis</i> and related medicinal plants   |
| 67. | Ms. Talat Makhmoor         | 2005 | Antioxidants from Medicinal Plants of Pakistan  |

## HONOURS AND AWARDS

Prof. Rahman is well known in his field for his prolific research publications in the field of natural products chemistry, for the excellent international chemistry conferences which he regularly organizes in Pakistan, and for his contributions in the establishment of one of the best centers in natural products chemistry (H.E.J. Research Institute of Chemistry).

It is therefore befitting that his efforts were recognized by the highest degree of Cambridge University (Sc.D.), which was conferred, on him in October 1987. Sir Syed Engineering University awarded D.Sc. to Prof. Atta-ur-Rahman in October 2003, Gomal University awarded

D.Sc. degree in April 2004 while University of Karachi honoured him with D.Sc. in 2005. He was the first recipient of the award of “Scientist of the Year” (for 1985) conferred by the Government of Pakistan in 1987, and he was awarded the “Islamic Organization Prize” by the Minister of Health of Kuwait on behalf of the Kuwait Foundation for the Advancement of Science for the year 1987 after an international competition (conferred on him in Cairo in November 1988). He has received the First Khwarazmi Prize after a competition between scientists of 57 Islamic countries. The prize was conferred on him by the President of Iran on 8<sup>th</sup> February, 1993. He was conferred the Award of the Federation of Asian Chemical Societies in Hiroshima, Japan in 1997. He has won four Civil Awards (Nishan-e-Imtiaz (Highest National Award), Hilal-e-Imtiaz, Sitara-i-Imtiaz and Tamgha-e-Imtiaz) and was also the President of the Chemical Society of Pakistan. He received the prestigious UNESCO Prize in a special ceremony in Budapest, Hungary in June 1999. He is the first Muslim scientist who has received this international honor.

Prof. Atta-ur-Rahman is the **President of the Pakistan Academy of Sciences** and the **President of the Network of Academies of Sciences of Islamic Countries (NASIC)**.

1. Member of the Scientific Partnership Foundation Council of Trustees (2004).
2. Gold Medal of the Scientific Partnership Charitable Foundation, Inter Bio Screen Ltd., Moscow, Russia, for Contribution to the World Science and Scientific Partnership, January 2004.
3. Chairman, Network of Academies of Sciences of OIC Member Countries (Organization of Islamic Conference) (NASIC), January 2004.
4. Chairman, EMRO (Eastern Mediterranean Regional Office) of the World Health Organization, ACHR (Advisory Committee on Health Research), February 2004.
5. Awarded the highest national Civil Award of **Nishan-e-Imtiaz** by the President of Pakistan on 14<sup>th</sup> August 2002.
6. Awarded the **ISESCO Chemistry Award** for 2001 on 22<sup>nd</sup> December 2001. The award conferred by Amir UAE, Shaikh Al-Qasmi in Sharjah.
7. Awarded the **Economic Cooperation Organization (ECO) Prize** on 14th June 2000, in Tehran, Iran, by the President of Iran for outstanding scientific contributions, including a cash award of USD 7,500/-
8. Awarded the “**UNESCO Science Prize**” for outstanding research by the Director General UNESCO on 29<sup>th</sup> June, 1999 in Budapest, Hungary.
9. Awarded the Civil Award of **Hilal-i-Imtiaz** by the President of Pakistan on 23<sup>rd</sup> March 1998.
10. Awarded **Babai Urdu Award**, 1994 by Babai Urdu Research Centre, Federal Govt. Urdu College, Karachi
11. Awarded Civil Award of “**Sitara-i-Imtiaz**” by the President of Pakistan on 23<sup>rd</sup> March, 1991.

12. Awarded the Civil Award of “**Tamgha-i-Imtiaz**” by the President of Pakistan on 23<sup>rd</sup> March, 1983.
13. Selected for the **Third World Academy of Sciences (TWAS) 1999 Award in Chemical Sciences**, which will be conferred on him at the Opening Ceremony of the Third World Academy of Sciences 7<sup>th</sup> General Conference to be held in Dakar, Senegal in December, 1999.
14. Awarded **First Prize of the Federation of Asian Chemical Societies** at the 7<sup>th</sup> Asian Chemical Societies Conference at Tokyo, Japan on 19<sup>th</sup> May (1997).
15. Awarded **First Pakistan Academy of Sciences-INFAQ Foundation Prize, Gold Medal** by Mr. Waseem Sajjad, Chairman. Senate in March, (1996).
16. Awarded the **Salimuzzaman Siddiqui Gold Medal** by the Pakistan Intellectuals Forum (1995).
17. Awarded **1<sup>st</sup> Prize at the 6<sup>th</sup> Kharazmi Festival** by The President of Iran on 8<sup>th</sup> February, 1993 on account of a project selected for the first prize by the Iranian Research Organization for Science & Technology in a competition between scientists from 54 Islamic Countries.
18. Awarded 1<sup>st</sup> “**Islamic Organization Prize**” for the year 1987 by Kuwait Foundation for the Advancement of Sciences in November, 1988.
19. Awarded best “**Scientist of the Year Award**” (for 1985) and prize of Rs. 2 lacs by Prime Minister of Pakistan on 19<sup>th</sup> March, 1987.
20. Awarded “**FPCCI Prize for Technological Innovation**” by Prime Minister of Pakistan on behalf of Federation of Pakistan Chamber of Commerce and Industries on 30<sup>th</sup> July, 1985.
21. Awarded **Open Gold Medal of the Pakistan Academy of Sciences** (1984).
22. Awarded **Gold Medal** of the Government of Kuwait at the First World Conference on Islamic Medicine (1980).
23. Awarded **Gold Medal of the Pakistan Academy of Sciences** (Under 40) by the President of Pakistan in October, 1977.
24. ‘Awarded the **First Prize** of Rs. 100,000 on the book entitled “One and Two Dimensional NMR Spectroscopy” under the scheme “Award on Books on Sciences, Social Sciences and Literature” by Pakistan National Book Council, Government of Pakistan.

## **APPOINTMENTS**

1. Appointed as the **Advisor to the Prime Minister for Science and Technology** on 18<sup>th</sup> November, 2005-Present

2. Appointed as **Federal Minister/Chairman, Higher Education Commission** (October, 2002-Present)
3. Appointed as the **Federal Minister for Science and Technology** by the Chief Executive of Pakistan on 14<sup>th</sup> March, 2000-October 2002.
4. Appointed as the **Federal Minister (In-charge) Ministry of Education** (July 2002 to October 2002)
5. Appointed as the **Federal Minister (Incharge) of the Ministry of Science and Technology and Adviser to the Prime Minister on Science and Technology** (July 2003)
6. Elected as the **President of the Pakistan Academy of Sciences** (Jan, 2003 – present)
7. Elected **President of Network of Academies of Sciences of Islamic Countries (NASIC)** (2004 – present)
8. Appointed as the **Chairman of Working Group on Science & Technology to prepare the 9<sup>th</sup> 5 Year Plan** (1998-2003) by the Government of Pakistan.
9. Appointed as **Member of Editorial Board of *Fitoterapia*** (1999).
10. Appointed as **Member of the Board of Trustees of Pakistan Science Foundation** by the Ministry of Science & Technology, Government of Pakistan (1999).
11. Appointed as **Member of Editorial Board of *Journal of Asian Natural Products Research*** (1998).
12. Appointed as the **Member of the Advisory Board of Journal of Pharmacy of Istambul University** (Turkey), 1998.
13. Elected as **Vice President of Pakistan Academy of Sciences** (1997).
14. Appointed, **Coordinator General of COMSTECH**, (1996) (Continue to till date).
15. Appointed, **Member of National High Level Review Committee on Science and Technology and Chairman of the Sub-committee on Pharmaceuticals**. The National Committee was constituted by Prime Minister of Pakistan to study the possible re-organization of the Ministry of Science and Technology and R&D organizations under its administrative control in order to make them more responsive to the needs of the country (1996).
16. Appointed as **Member of the Editorial Board of “Spectroscopy: An International Journal”**. IOS Press, Amsterdam (1996).
17. Elected as **Scientific Advisor to CIBA Foundation (now Novartis Foundation)**, London (1995 – present).

18. Appointed as **Member of Governing Body of Sir Syed Engineering University**, as member of Board of Trustees of Pakistan Science Foundation and as member of Board of Graduate Studies of Aga Khan University (1995).
19. Appointed as **Member of the Academy of Natural Sciences**, Republic of Uzbekistan, 1994.
20. Elected **President of the Chemical Society of Pakistan** (1992).
21. Appointed as the **Member of the Editorial Board of Khimiya Prirodnynkh Soedinchii** (Chemistry of Natural Compounds (Uzbekistan), 1992).
22. Appointed as the **Member of the Editorial Board of Journal of Islamic Sciences** (Turkey), 1991.
23. Elected to the **Fellowship of the Islamic Academy of Sciences** in 1988.
24. Appointed **Member National Commission for Science and Technology** January 1985.
25. Elected to the **Fellowship of the Third World Academy of Sciences** in July 1985.
26. Appointed as **U.N.I.D.O. Expert on Panel on Medicinal Plants** in August 1984.
27. Appointed as **W.H.O. Expert on Vector, Biology and Control** in July 1983 (till to date).
28. Elected **Chairman of S.C.A.M.A.P** (a Regional U.N.E.S.C.O. network on medicinal and aromatic plants comprising 11 regional countries) on 18<sup>th</sup> October, 1982.
29. Elected to the **Fellowship of Pakistan Academy of Sciences** in 1982.
30. Appointed by **U.N.E.S.C.O. as Chairman of National committee for South and Central Asian Medicinal and Aromatic Plants** (S.C.A.M.A.P.) (1982-1985).
31. Elected to the **Fellowship of the Royal Society of Chemistry**, London (1981).
32. Appointed as **Secretary of S.C.A.M.A.P** (UNESCO Regional Network) (1980).
33. Appointed to the **National Council for Tibbi Research** by President of Pakistan and elected to its Executive Board (1980).
34. Appointed **Member of the Steering Committee** for Establishment of Chemistry Center in Trieste, Italy (still continuing).
35. Member, **American Chemical Society**. U.S.A.
36. Member, **American Society of Pharmacognosy**.
37. Member, **Swiss Chemical Society**.
38. Member. **New York Academy of Sciences**.
39. Member, **Russian Academy of Sciences**.

**PARTICIPATION IN INTERNATIONAL CONFERENCES**

1. Participated and presented a Special Lecture on “Changing Landscapae of Higher Education, Science and Technology in Pakistan” during the 10<sup>th</sup> International Symposium on Natural Product Chemistry on 6<sup>th</sup> January, 2006.
2. Participated as a speaker in the “interactive Roundtable Session for the High Level Panel Meeting of the UN General Assembly” held in New York on 15<sup>th</sup> September 2005.
3. Participated in Special High-Level Global Roundtable Forum at the United Nations on “Innovation and Investment: Science and Technology to meet the Millennium Development Goals” in New York, USA on 13<sup>th</sup> September 2005.
4. Participated in “Preparatory Forum of the Scholars and Intellectuals” ahead of the extraordinary session of the Islamic Summit Conference in Makkah from 9 – 11 September 2005
5. Presented Keynote Address in the Ministerial Roundtable on Science, Technology and Innovation to meet the MDGs at UN Headquarters in New York, USA, 29<sup>th</sup> June to 1<sup>st</sup> July 2005
6. Presented Keynote Address at the 8<sup>th</sup> Regular Session of the Commission on Science & Technology for Development at Geneva from 23<sup>rd</sup> to 27<sup>th</sup> May 2005
7. Presented Keynote Address in the Malaysia-IAS 2005 Science Conference and 1<sup>st</sup> Meeting of OIC Task Force on Vision 1441, 21<sup>st</sup> to 25<sup>th</sup> March, 2005
8. Presided over the Twenty-First Session of the EMACHR (WHO Eastern Mediterranean Advisory Committee on Health Research to take place in Regional Office, Cairo, Egypt, 13<sup>th</sup> to 15<sup>th</sup> March, 2005
9. Presented Keynote Address in Conference of Information and Communication Technology for Sustainable Development at Abu Dhabi, 11<sup>th</sup> to 12<sup>th</sup> December, 2004
10. Participated in the Third World Academy of Sciences (TWAS) 15<sup>th</sup> General Meeting at Trieste, Italy, 20<sup>th</sup> to 26 November, 2004
11. Participated as Keynote Speaker in the Inauguration of INASP Symposium in Oxford UK, 5<sup>th</sup> November, 2004
12. Participated as a Resource Person in the panel on “S&T Promotion, advice and application, for the achievement of the Millennium Development Goals” on the UN Commission for S&T for Development, 26<sup>th</sup> to 29 October, 2004, Vienna, Austria.
13. Participated as Keynote Speaker at Biennial Conference on Science and Technology (BICOST III), 15<sup>th</sup> to 17<sup>th</sup> September, 2004, Budapest, Hungary.
14. Participated in the 11<sup>th</sup> Meeting of the General Committee for the IDB Merit/M.Sc. Scholarship Program at IDB Headquarters, Jeddah, Sauid Arabia, 29<sup>th</sup> to 31<sup>st</sup> July, 2004.

15. Participated and presented a Keynote Lecture at the 42<sup>nd</sup> Meeting of the WHO Global Advisory Committee on Health Research at Geneva, 2<sup>nd</sup> to 8<sup>th</sup> May, 2004.
16. Participated and presented a Plenary Lecture entitled “Natural Product Chemistry-At the Turn of the Century” at the 9<sup>th</sup> International Symposium on Natural Product Chemistry, held in Karachi, Pakistan from 10-13 January 2004.
17. Participated and presented Plenary Lecture entitled “Biodiversity-Source of new Pharmacophores” at the ICOB-4 & ISCNP-24 (IUPAC International Conference on Biodiversity and Natural Products: Chemistry and Medical Applications, held in New Delhi, India from 26-31 January, 2004.
18. Gave Keynote Lecture at the Graduation Ceremony of Asian Institute of Technology (AIT) at AIT Conference Center, Bangkok, Thailand, 18<sup>th</sup> to 19<sup>th</sup> December, 2003.
19. Gave Keynote Lecture at the Asia-Pacific Industrial Development Forum on Biotechnology at the Chengdu International Exhibition and Convention Center, Chengdu, China, 16<sup>th</sup> to 17<sup>th</sup> December, 2003.
20. Attended the World Summit on Information Society (WSIS) by United Nations at Geneva, Switzerland, 10<sup>th</sup> to 12<sup>th</sup> December, 2003
21. Gave Keynote Lecture at the Conference on Role of Science in Information Society (RSIS) at Geneva, Switzerland, 6<sup>th</sup> to 9<sup>th</sup> December, 2003.
22. Gave Keynote Lecture at the Conference on Role of Science in Information Society (RSIS) at Geneva, Switzerland, 6<sup>th</sup> to 9<sup>th</sup> December, 2003.
23. Gave Keynote Lecture at OIC Conference on Science & Technology at Kuala Lumpur, Malaysia, 6<sup>th</sup> to 10 October, 2003.
24. Attended the International Basic Science Program (IBSP) Meeting UNESCO Headquarters, Paris, 19<sup>th</sup> to 22 May, 2003.
25. Attended and presented a Lecture at Workshop Capacity Building for Academies at Trieste-Italy, 5<sup>th</sup> to 7<sup>th</sup> March, 2003.
26. Participated and presented a Plenary Lecture entitled “Natural Products Chemistry at the Turn of the Century” at the 7<sup>th</sup> Eurasia Conference on Chemical Sciences held in Karachi, Pakistan from 8-12 March, 2002.
27. Participated and presented a Lecture at Pak Millennium Conference 2002 in Boston, 8<sup>th</sup> to 17 April, 2002
28. Presented Keynote Address at the UNESCO Round Table of Ministers of Science Paris, France and Eleventh Islamic Academy of Sciences Conference at Rabat, Morocco, 22<sup>nd</sup> to 26<sup>th</sup> October 2001
29. Participated and presented a Plenary Lecture entitled “Bioactive natural products - a potential source of new pharmacophores” at the 22<sup>nd</sup> IUPAC Symposium on the Chemistry of Natural Products held in Sao Paulo, Brazil from 4-8 September, 2000.

30. Presented a Plenary Lecture at the Brunei University on 3rd March, 2000.
31. Participated and presented a Plenary Lecture at the 8th International Symposium on Natural Product Chemistry held in Karachi, Pakistan from 18th to 22nd January, 2000.
32. Participated and presented a lecture at the 16th Expert Committee meeting on Vector Biology and Control entitled "Chemistry and Specifications of Pesticides" held in Geneva, Switzerland from 6th to 10th December, 1999.
33. Participated and presented a Special Lecture at the 7th International Conference and 11th General Conference of the Third World Academy of Sciences held in Dakar, Senegal from 22nd - 27th November, 1999. President of Senegal conferred TWAS Gold Medal on 22nd November, 1999 on outstanding scientific achievements.
34. Participated and presented a lecture at the Third Governing Body meeting of Inter-Islamic Network on Water Resources Development and Management held in Amman, Jordan from 18th to 21st September, 1999.
35. Participated and presented a lecture at the Ninth Islamic Academy of Science Conference "Science Education and Technology Management for Development in the Islamic World" held in Amman, Jordan from 26th to 31st July, 1999.
36. Participated and presented Plenary Lecture at the World Conference on Science in Budapest, Hungary from 24th June to 2nd July, 1999. Prof. Atta-ur-Rahman also awarded the "UNESCO Prize" by the Director General UNESCO on 29th June, 1999 in Budapest, Hungary.
37. Attended the seventeenth session of the Executive Committee of COMSTECH, held in Damascus, Syria from 12th-16th April, 1999.
38. Participated and presented a Plenary Lecture at the 21st IUPAC Symposium on the Chemistry of Natural Products, held in Beijing, China from 11th to 18th October, 1998.
39. Delivered lecture at the Symposium on Planning and Management of Research Projects, organized by the King Abdulaziz City for Science & Technology in Saudi Arabia from 16-18 November, 1998.
40. Delivered lecture at the 9th IUPAC Congress on Pesticide Chemistry at London, U.K., 2-7 August, 1998.
41. Inaugurated and delivered a keynote address at the seminar on "Improving Productivities and Deeping Industrialisation in the Field of Electronics, Informatics and Telecommunications" in the OIC Member Countries in Cairo, Egypt, 19-23 June, 1998.
42. Delivered a lecture at the 4th International Conference in Tehran, Iran, 18-22 May, 1998.
43. Delivered Plenary Lecture at the 7th Asian Chemical Societies Conference at Hiroshima, Japan, from 17-21 May, 1997.
44. Delivered Invited Lecture at the 20th IUPAC Symposium on Natural Product Chemistry in Chicago. 1996.

45. Organized and delivered Plenary Lecture in the 7th International Symposium on the Chemistry of Natural Products, in December 28, 1997-January 1, 1998 in Karachi, Pakistan.
46. Organized and presented Plenary Lecture in the Workshop on Science and Technology in December 16-17, 1997 in Islamabad, Pakistan.
47. Organized and presented Plenary Lecture in the 7th International Symposium on the Chemistry of Natural Product in December 28, 1997 in Karachi, Pakistan.
48. Delivered Plenary Lecture at the Symposium on Bioactive Natural Products and attended the Rocky Mountain Regional meeting of the American Chemical Society, held in Colorado, U.S.A., from 9th to 12th June, 1996.
49. Organized and delivered lecture on the occasion of 6th International Symposium on the Chemistry of Natural Products and Pak-US Binational Workshop on GC-MS in January 4-8, 1996 in Karachi, Pakistan.
50. Delivered lecture on the occasion of 35th International Union of Pure & Applied Chemistry Congress. held from 14th to 19th August, 1995 in Istanbul, Turkey and also gave series of lectures on NMR Spectroscopy at the Faculty of Pharmacy, Gazi University, Turkey.
51. Delivered lecture in the Workshop in "Purification and Structure-Determination Techniques to Speed Drug Development" from 15th to 16th May, 1995 at San Francisco, U.S.A.
52. Delivered lecture on the occasion of International Conference on Science in Islamic Polity in the Twenty-first Century, organized by COMSTECH, from 26th to 30th March. 1995 in Islamabad.
53. Delivered lecture at the First International Meeting on Pharmacy and Pharmaceutical Sciences, from 4th to 7th September, 1994 at Istanbul, Turkey.
54. Organized and delivered lecture on the occasion of 19th IUPAC International Symposium on the Chemistry of Natural Products, held from 16th to 20th January, 1994 in Karachi.
55. Organized and participated in the 5th International Symposium and Pakistan-U.S. Binational Workshop on Natural Product Chemistry at Hotel Holiday Inn, Karachi From 5-9 January 1992.
56. Participated and presented a poster, a Key Note Address at the 18th IUPAC symposium on the Chemistry of Natural Products from 30th August-4th September 1992 at Strasbourg, France.
57. Participated and presented a Plenary Lecture at the "Regional Conference on Medicinal Products from Tropical Rain Forest" from 13-15 May 1991 at Kepong, Kuala Lumpur.
58. Participated and presented a Plenary Lecture at a conference entitle "Fifty years of Chemistry in Sri Lanka, Golden Jubilee-Symposium on Natural Products Chemistry" from 20-23 May 1991 at Peradeniya, Sri Lanka.

59. Participated and presented an invited Lecture at the "Gordon Research Conference 1991" from 22-26 July 1991 at New Hampton, USA.
60. Participated and presented a lecture at the "33rd IUPAC Congress" from 17-22 August, 1991 at Budapest, Hungary.
61. Participated and presented a Plenary Lecture at the Regional Seminar on Research Trends in Medicinal Plants. from 1-3 December 1991 at Dacca, Bangladesh.
62. Organized and Participated in the 2nd International Chemistry Conference in Karachi University from 28-30th December, 1990.
63. Participated in the Second General TWAS meeting Caracas, Venezuela from 18-20 October, 1990.
64. Participated in the First Review Group Meeting on Pesticides for the Revision of the WHO Guidelines for Drinking-Water Quality-gusto Garolfo (Milano), Italy from 28-30 June 1990 Organized by W.H.O.
65. Participated and presented a Plenary Lecture at the International Symposium on Natural Products Chemistry from February 12-15, 1990 at Katmandu, Nepal.
66. Participated and presented a invited Lecture at the 17th IUPAC International Symposium on the Chemistry of Natural Products from 4-9 February 1990 at Delhi, India.
67. Organized and participated the 4th International Symposium and Pakistan-US Binational Workshop on Natural Product Chemistry at Hotel Holiday Inn, Karachi from January 1990.
68. Presented Plenary Lecture at the Fifth International Conference on Islamic Medicine from 20-23 November 1989 at Cairo, Egypt.
69. Participated in the 31st National Organic Symposium at Cornell University, Ithaca U.S.A from 18th to 22nd June 1989.
70. Participated in the W.H.O. Expert Panel meeting on W.H.O. Expert Committee meeting on the chemistry and specifications of Pesticides at W.H.O. headquarters, Geneva from 19 to 25 Sep. 1989.
71. Participated and presented a Plenary Lecture at the 1st National Chemistry Conference held in Peshawar in October 1989.
72. Participated and presented invited Lecture at Huang-Minlon Symposium on Organic Chemistry held in Shanghai, China from 7-10 November 1989.
73. Participated and presented Plenary lecture at a conference on Technologies and the Development of the Muslim World from 2 to 7 December, 1989 at Kuwait.
74. Presented Inaugural Lecture at the inauguration of the Institute of Fundamental Sciences in April 1988 in Peradinya, Sri Lanka.

75. Participated and presented Plenary Lecture at the Tokushima 88 Presymposium on "Natural Products Chemistry" from 28-29 May 1988 at Tokushima Bunri University, Japan.
76. Participated and presented Invited Session Lecture at the "16th I.U.P.A.C. International Symposium on the Chemistry of Natural Products" from May 29-June 3rd 1988 at Kyoto, Japan
77. Participated and presented Plenary lecture at the "Second NAPRECA Symposium on Natural Products and Workshop on Development of Data bases", from 12-16 September 1988 at Nairobi, Kenya.
78. Participated and presented Plenary lecture at the "Sixth Asian Symposium on Medicinal Plants and Spices". (ASOMPS-VI) from 24-28 January 1989 at Bandung, Indonesia.
79. Presented Plenary Lecture at the Tokushima 88 Pre-Symposium, Tokushima from 28 to 29 May 1988.
80. Organized and Participated in the 3rd International Symposium and Pakistan-US Binational Workshop on Natural Product Chemistry from 19th-14th January, 1988.
81. Organized and presented Plenary Lecture at the International Workshop on "Isolation and Structure Elucidation of Natural Products using Spectroscopic Techniques", in Karachi from 11-16 January 1987.
82. Participated and presented a Plenary Lecture in the Second National Meeting of Chemists at King Saud University, Riyadh, from 7th-9th March 1987.
83. Participated in the Symposium on Organic Synthesis at Churchill College, University of Cambridge in July 1987.
84. Presented Plenary Lecture at the Fourth International Conference on "Chemistry and Biotechnology of Biologically Active Natural Products" at Budapest, from 10-14 August 1987.
85. Participated in the "11th International Congress of Heterocyclic Chemistry" at Heidelberg from 16-21 August 1987.
86. Participated in the "Second General Conference of Third World Academy of Sciences" held in Beijing from 11th to 18th September 1987.
87. Participated in 15th I.U.P.A.C. International Symposium on "The Chemistry of Natural Products" at the Hague (Holland) from 17th-22nd August, 1986.
88. Organized and Presented Plenary Lecture at the 2nd International symposium, U.N.E.S.C.O. - S.C.A.M.A.P. Workshop and Pakistan-U.S. Binational workshop on "Natural Products Chemistry" Karachi from 18th to 25th January, 1986.
89. Presented Plenary Lecture at the Sub-regional workshop organized by the Department of Chemistry, University of Indonesia from November 3rd-6th 1986.

90. Participated in the International Expert Panel Meeting on the issue of medicinal plants and to evaluate practical applications at Vienna from 10th-12th December, 1986.
91. Participated in the International U.N.E.S.C.O. Workshop on Spectroscopy at Peradinya, Sri-Lanka, 29th June -4th July, 1985.
92. Presented Plenary Lecture at the Third International Conference on the Chemistry and Biotechnology of Biologically Active Natural Products held in Sofia, Bulgaria from 16th to 21st September 1985.
93. Presented Plenary Lecture at the I.U.P.A.C. Symposium entitled "International Symposium on Organic Chemistry of Medicinal Natural Products" held in Shanghai, China from 10th to 13th November 1985.
94. Organized and participated in the 1st International Symposium and Pakistan-U.S. Binational Workshop on Natural Products Chemistry in Karachi (5th-9th February 1984).
95. Participated in 8th the International Symposium on Medicinal and Aromatic Plants in Seoul, Korea (August, 1984).
96. Participated in the Conference on "Chemistry and Developing Countries" in Norwich, England (September 1984).
97. Participated in the Conference on "Elements in Health and Disease" organized by Hamdard, Delhi (February 1983).
98. Presented Plenary Lecture in the Alfred Benzon Symposium on Natural Products and Drug Development in Copenhagen, Denmark (7-11th August 1983).
99. Participated in the 9th International Congress in Heterocyclic Chemistry and was chairman at a major session in Tokyo, Japan (21st-26th August 1983).
100. Participated in the World Health Organization meeting on Vector, Biology, and Control in Geneva, Switzerland (8th-14th November 1983).
101. Participated in Panel Meeting of International Organization of Chemistry in Development in Delhi, India (December 1983).
102. Member of the Government delegation to the First World Conference on Islamic Medicine at Kuwait (March 1981).
103. Participated in the 7th International Symposium on Organic Synthesis held in Oxford, England in July 1981.
104. Participated in Conference organized by G.T.Z./B.M.Z. on "Education and Development in Asian Bangkok (October 1981).
105. Represented Pakistan at the 4th Asian Symposium on Medicinal Plants and Spices, Bangkok (September 1980) (Chairman at two of the organic chemistry sessions, and Plenary Lecturer).

106. As U.N.I.D.O. expert on medicinal plants, Professor Rahman participated in the U.N.I.D.O. Consultants Meeting on Production of Drugs from Medicinal Plants (Lucknow, India, March 1978).
107. Represented Pakistan in the 3rd Asian Symposium on Medicinal Plants and Spices, Colombo, Sri Lanka (1977).
108. Member of the Government delegation in the First World Conference on Muslim Education at Jeddah (1977).
109. Represented Pakistan at the 27th International Union of Pure and Applied Chemistry Congress in Tokyo (October 1977) (Chairman at two of the organic chemistry sessions).
110. Participated in the I.U.P.A.C. Conference in Boston (1971).
111. Participated in the I.U.P.A.C. Conference in London (1968).

### **INTERNATIONAL CONFERENCES ORGANIZED**

**Prof. Atta-ur-Rahman in his capacity as Organizing Secretary or Chairman has organized the following major international conferences.**

1. The 1st International Symposium and Pakistan-U.S. Binational Workshop on Natural Products Chemistry held in Hotel Intercontinental Karachi, from 5th-9th February 1984. The proceedings of this conference have been published by Springer-Verlag in 1986 and marketed internationally (Editor: Prof. Atta-ur-Rahman).
2. Prof. Atta-ur-Rahman organized the 2nd International Symposium, Pakistan-U.S. Binational Workshop and U.N.E.S.C.O-S.C.A.M.A.P. Workshop on Natural Products Chemistry at Hotel Holiday Inn, Karachi from 18-25 January, 1986. The proceedings of the conference have been published and marketed internationally by Elsevier (Holland), (Editors: Prof. Atta-ur-Rahman and Prof. Philip W, Le Quesne).
3. Prof. Atta-ur-Rahman organized the International Workshop on Isolation and Structure Elucidation of Natural Products using spectroscopic Techniques at Hotel Pearl-Continental, Karachi from 11th-16th January 1987.
4. Prof. Atta-ur-Rahman organized the 3rd International Symposium and Pakistan-US Binational Workshop on Natural Product Chemistry from 9th-14 January 1988. The proceedings have been published by Springer-Verlag, West Germany, (Editors: Prof. Atta-ur-Rahman and Prof. P.W. Le Quesne).
5. Prof. Atta-ur-Rahman organized the 4th International Symposium and Pakistan-US Binational Workshop on Natural Product Chemistry at Hotel Holiday Inn, Karachi from January 1990 (conference inaugurated by President of Pakistan, inaugural lecture presented by Nobel Laureate Prof. H.C. Brown).
6. Prof. Atta-ur-Rahman organized the 2nd National Chemistry Conference in Karachi University from 28-30th December, 1990.

7. Prof. Atta-ur-Rahman organized the 5th International Symposium and Pakistan-U.S. Binational Workshop on Natural Product Chemistry at Hotel Holiday Inn, Karachi from 5-9 January 1992. The Inaugural Lecture was presented by the Nobel Laureate Prof. Sir D.H.R. Barton.
8. Prof. Atta-ur-Rahman was Chairman of the Organizing Committee of the 19th IUPAC Symposium on the Chemistry of Natural Products in January 16-20, 1994 in Karachi, Pakistan.
9. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 6th International Symposium on the Chemistry of Natural Products and Pak-US Binational Workshop on GCMS in January 4-8, 1996 in Karachi, Pakistan.
10. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the University Industry-Interaction Workshop in September 12-13, 1997 in Karachi, Pakistan.
11. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the Workshop on Science and Technology in December 16-17, 1997 in Islamabad, Pakistan.
12. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 7th International Symposium on the Chemistry of Natural Products in December 28, 1997-January 1, 1998 in Karachi, Pakistan.
13. Organized the Natural Product Chemistry section at 9th IUPAC Congress on Pesticide Chemistry at London, U.K., 2-7 August, 1998.
14. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 8th International Symposium on the Chemistry of Natural Product in January 18-January 22, 2000 in Karachi, Pakistan.
15. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 7<sup>th</sup> Eurasia Conference on Chemical Sciences, March 8-12, 2002, Karachi, Pakistan.
16. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 9<sup>th</sup> International Symposium on Natural Product Chemistry, January 10-13, 2004 in Karachi, Pakistan.
17. Prof. Atta-ur-Rahman was the Chairman of the Organizing Committee of the 10<sup>th</sup> International Symposium on Natural Product Chemistry, January 6-9, 2006 in Karachi, Pakistan.