C U R R I C U L U M V I T A E

Name: **AHMAD ALI SHAHID**

Designation: Assistant Professor

Highest Degree: Ph. D

Postal Address: Institute of Agricultural Sciences, University of the Punjab, Lahore.
E-mail:ahmadali.shahid@gmail.com

ACADEMIC QUALIFICATION

Institute	Degree	Year	Field of study
CEMB, University of the Punjab Lahore, Pakistan	Ph. D	2004	Fungal Biotechnology / Plant Molecular Biology
University of AgricultureFaisalabad, Pakistan	M.Sc (Hons.)	1988	Plant Pathology
University of AgricultureFaisalabad, Pakistan	B.Sc (Hons.)	1986	Plant Pathology

Title of Post Doc. Studies:

Characterization of Abscission Related Genes of *Arabidopsis thaliana.*

Title of Ph. D. Thesis:

Production of Phytotoxins from *Ascochytarabiei* and Molecular Studies of Defence Genes in Blight Infected Chickpea.

Title of M. Sc. (Hons.) thesis:

Effect of Root-knot Nematode (Meloidogyne spp.) on Nodulation and Development of Chickpea (*Cicerarietinum* L.).

RESEARCH/TEACHING EXPERIENCE:

2010-todate: Presently I am working in CEMB and Institute of Agricultural Sciences (IAGS), University of the Punjab, Lahore.Two medicinal plants, *Nigella sativa&Trachyspermumammi* were screened for phytochemical constituents and nutritional analysis. Tests for flavonoids, tannins, steroids were positive in both spices except saponins. The nutrition analysis indicated higher energy value, carbohydrates, protein content, fat content, moisture content, fibre content and ash content in *N. sativa&T. ammi* seeds respectively. Methanolic extract of *N. sativa* showed maximum inhibitory potential against fungi&bacteria. Anti-bacterial activity of n-hexane extract was maximum for bacteria. A study is also being carried out by my two Ph. D students, to investigate the expression of insecticidal gene Cry 1Ac in cotton (*Gossypiumhirsutum*) under CLCuV bidirectional promoter isolated from cotton leaf curl burewala virus genome. Cotton leaf curl burewala virus is recombinant, consisting of sequences derived from CLCuMuV and CLCuKoV (Amrao et al 2010). The promoter can initiate transcription in two directions; therefore the promoter is called a bidirectional promoter. This promoter is an excellent candidate to drive strong and consistent expression of transgene. This expression will be restricted to the green tissues of plants, there will be no expression of these genes in roots, ultimately no threat to soil microorganism and environment regarding biosafety point of view.Another study which is different from the above was to study the role of epicuticulae wax in transmission of CLCuV. As it is already reported that G. arboretum is resistant to CLCuV, so in order to study the role of epicuticular was , its wax mutant named GaWm3 having 50 % less wax were prepared. An attempt was made by infecting *Gossypiumarboreum*variety 786, its wax mutant GaWM3 along with *Gossypiumhirsutum*MNH-93 with viruliferous whiteflies. The presence of symptoms on leaves and amplification by PCR for virus in *G. hirsutum*MNH-93 and wax mutant GaWM3 but not in *G. arboreum*variety 786 clearly determined the presence of virus in *G. hirsutum*MNH-93 and wax mutant GaWM3 but not in *G.arboreum*variety 786. The results indicate that wax may act as physical barrier and provide hindrance in transfer of virus by whitefly.

2002-2010: In National Centre of Excellence in Molecular Biology (CEMB), I was leading a group working on PCR and Protein based Detection of GMOs crops. Established laboratory for GMO detection.My group has transformed cotton and rice with one as well as two insecticidal genes and further evaluated these transgenic crops on large scales for their field adaptability to cotton growing zones of Punjab province especially. Along with the field testing, we are evaluating the impact of these transgenic crops on plants, animals and ecosystem. Recently, I have completed a project and concluded that transgenic crops are safe to non target insects and protein degradation kinetics in soil showed that it gets degraded in soil with the passage of time. Horizontal and vertical gene flow of transgenic crops was studied. The temporal and spatial expression of transgenic Bt protein was also

studied in cotton and rice. Currently I am working on the improvement of cotton fibreby transforming it with fibre related genes from *Calotropisprocera*.

2006-2007: During Post Doctorate studies in Nottingham University, UK, Six Abscission Related Genes from *Arabidopsis thaliana*were characterized. The length of the promoters used to derive expression of these reporters varied in size from 0.5 to 1.5 kb however it is likely that within each of these sequences are domains that render expression abscission-related.

2001-2002: Worked in Forensic DNA typing group. The group sought to establish all the molecular techniques involved in human DNA typing and development of population database for Pakistan. During the work in forensic group I have validated laboratory conditions for DNA extraction from various starting materials i.e. blood stains, semen stains, nails, vaginal swab and saliva swab. Diverse nature of crime scene samples containing biological materials and STR amplification was also carried out in order to characterize extracted DNA from forensic samples. Particular emphasis has been on the parentage analysis and crime casework on the basis of 13 STR loci including in COIDS (combined DNA index system) published by FBI, USA for forensic casework.

1997-2001 Quality control and shelf life studies of entomopathogens. Different isolates of *Metarhiziumanisopliae* were taken from Dr. Tariq Butt and grown for the production of conidia. The virulence of these conidia was confirmed through insect bioassay against aphids, whitefly, leaf folder and H*eliothis*. Developed a fungal mycopesticide from Entomopathogenic fungi. It showed effective control of insect population with significant killing of vegetative insects and crops, including cotton white fly, aphids, h*eliothis,* rice leaf folder and yellow stem borer during field trials. Studies on secretary proteins of *Metarhizium* had lead to the presence alkaline fractions after IEF purification, which were effective to enhance the pathogenicity of the developed mycopesticide.

1993-1997: Different samples were collected from soil, water and seed dust for the isolation of anti-fungal bacteria. Three bacterial strains present in samples exhibited anti-fungal activity.These strains were identified as *bacillus cereus,Enterobacteragglomeranse* and *Klebsiellaozaenae*. Parallel studies to inhibit the fungal growth by Ribosomal inactivating protein (RIP 30) and Chitinase (Chi 26) were also carried out. These proteins inhibited the fungal growth. Chitinase, Beta-glucanase and RIP like gene family of defence genes was detected from chickpea plant by southern and northern analysis under different stringent conditions. Immunological studies indicated the presence of chitinase like protein in chickpea as evidenced by affinity for poplar chitinase antibodies.

1991-1993: Chickpea blight infected plant material was collected from different fields of the Punjab province and isolated phytotoxins from that material. These isolated phytotoxic compounds were the same as I found from culture filtrate of *Arabiei*. Solanapyrone A was observed in more quantity as compared to other solanapyrones.

1990-1991: Faculty member of Biology Department University College London, UK. Purified three phytotoxic compounds, Solanapyrone A, B and C from culture filtrates of

chickpea blight caused by *A. rabiei*.Solanapyrone A and C were already reported but solanapyrone B was first time isolated from culture filtrate of *A. rabiei*. The toxicity of purified phytotoxic compounds was also checked on the cells of five chickpea cultivars.When the phytotoxicity of purified solanapyrones was determined in *vitro*, by chickpea cell bioassay, it was observed that the level of activity was dependent on the genetic identity of chickpea cultivars used as source material for the isolation of cells. However, when the same chickpea cultivar was used, the three compounds exhibited phytotoxic activity in the order of solanapyrone A >solanapyrone B and >solanapyrone C.

1988-1990: Purification of different fungal isolates from blight infected chickpea plants. Established growth conditions for *Ascochytarabiei.*

1986-1988: Effect of Root-knot Nematode (Meloidogyne spp.) was studied on Nodulation and Development of Chickpea (*Cicerarietinum* L.).

PROJECTS:

Following projects have been obtained:

1- Biosafety Studies of Genetically Modified Crops. **HEC 1.7 millions**
2- Physical mapping of Bt-gene - Rice and Cotton. **HEC 1.2 million**
3- Effect of Genetically Modified crops on soil micro-organism and animals. **HEC 3.5 million**

HONORS AND AWARDS:

- Post Doctorate Fellowship awarded by Higher Education Commission completed at Plant Science Division, School of Biosciences, University of NottinghamUK for one year (November 2006 to October 2007).
- Member Board of Faculty of Science, PunjabUniversity, Lahore (1999 to 2000).
- The certificate of accomplishment for maintaining an excellent record of results and data books, CEMB (1997).
- Faculty member of Biology Department, University College London, U.K for nine months (September 1990 to May1991).
- Rotary club merit scholarship in B.Sc and M.Sc (1984 to 1988).
- Merit Scholarship in Middle and Matric (1977 and 1979).

POST GRADUATE EXTERNAL EXAMINER:

- GC University, Lahore.
- The University of Lahore.
- LahoreCollege for WomenUniversity.
- GC University, Faisalabad
- COMSATS Institute of Information Technology, Islamabad

TECHNICAL EDITOR

- Technical Editor of Mycopath, A Journal of Mycophytopathological Society of Pakistan.

MEMBERSHIP OF PROFESSIONAL SOCITIES:

- Member Pakistan society of Phytopathology.
- Member Pakistan society of Biochemistry.
- Member of Institutional Biosafety Committee.

ADMINISTRATION:

- Successfully completed five times duties as Acting Director Institute of Agricultural Sciences (IAGS), University of the Punjab, Lahore.

- Incharge M. Phil / Ph. D Programme of the IAGS and CEMB

- Incharge Journal Club of National Centre of Excellence in Molecular Biology, (1998-2000).

SUPERVISOR OF Ph D RESEARCHSTUDENTS:

- Kamran Shahzad (2009), Entitled " Transformation of Fiber Related Gene in Cotton"
- M Aleem Ashraf (2009), Entitled "Development of Hybrid Cotton by Male Sterility"
- Muhammad Israr(2010), Entitled "Genetic Characterization of ChrXminiSTRs in Pakistani Population"
- AzmatUllah Khan (2012), "Characterization of Epicuticular Wax for their Role as Physical Barrier in Transmission of CLCuV in Cotton"
- Mian Sahib Zar (2012), "Comparative Analysis of STRs, mini – STRs and SNPs for Typing Degraded DNA"

SUPERVISOR OF M. Phil RESEARCHSTUDENTS:

- Sidra Akhtar (2012), "Agrobacterium Mediated Transformation of *Calotropisprocera* fiber gene in Cotton"
- Memona Imran (2012), "Risk Assessment Studies of Transgenic Cotton on Chicks."
- SairaAyuab (2012), Biocontrol of soft rot of potato by using rhizobacteria.
- SehrishIftikhat (2012), Essential oil and latex as novel antiviral agents and monitoring of antimicrobial activity using molecular markers.
- Asma Ibrahim (2011), Studies on Biological Control of Root Knot nematodes (*M.incognita*).
- Ayesha Umeera (2011), Phytochemical Investigation of Ajivain and Klovinji.
- AzmatUllah Khan (2011), Role of Epicuticular Waxes in the susceptibility of Gossypiumarboreum cotton to CLCuV.
- Muhammad Afzal (2011), A Tool for recondiary Structure Determination and Analyzing DNA.
- Sana Khalid (2009), Effect of Bt crop on animals (*Gossypiumhirsutum*).
- Noor Muhammad (2007), Inheritance and biosafety studies of Bt. Transgenic Basmati Rice.
- SaimaSiddique (2007), Isolation and cloning of fructose – 1, 6 – Bisphosphatealdolase from *Arabidopsis thaliana* to a Plant expression vector.
- AbdulSattar (2002), Isolation and Identification of Virulent Factors from Entomopathogenic Fungi.
- Muhammad Tariq (2000), Isolation and Characterization of different isolates of *Metarhiziumanisoplea* from local environment.

SUPERVISOR OF B. Sc (Hons) RESEARCHSTUDENTS:

- GulshanNazir (2012), Soil and water analysis techniques for crop production.
- MadihaMunir (2012), Soil and water analysis techniques for crop production.
- AyshaJaved (2012), Isolation of *Bacillus* species from soil and evaluation for antifungal activity against *Fusariumoxysporum*.
- HinaShinakhat (2012), Isolation of Bacillus species from soil and their antifungal activity against *Aspergillusniger*.
- RabiaAfzal (2012), Isolation of Bacillus species from soil and their biocontrol against*Alternariaalternata*..
- AnamShakir (2012), Isolation and molecular characterization of Saline soil bacteria.
- Ayusha Sharif (2012), Isolation and molecular characterization of Saline soil bacteria.
- TehminaBahar (2012), Isolation and molecular characterization of Saline soil bacteria.
- Rida-e-Fatima (2012), Isolation and molecular characterization of Saline soil bacteria.
- RabbiaBukhari (2012), Study of efficiency of different concentration of pesticides on white fly at cotton and pumpkin crops.

- RabiaIqbal (2011), Sprinkler Irrigation System; A water Efficient and Disease controlling Approach to Crop Production.

PUBLICATIONS:

International:

1. González-Carranza Z H, **Shahid A A**, Zhang L , Yang L, Ninsuwan U, Roberts J A.(2012). A novel approach to dissect the abscission process in Arabidopsis. Plant Physiology. Published on September 21, 2012, as DOI:10.1104/pp.112.205955.

(Impact Factor = 7.054)

2. Ilyas M, Nawaz. K ShafiqM,Haider M S and **Shahid A A.** (2012).Archives of Virolog. Complete nucleotide sequences of two begomoviruses infecting Madagascar periwinkle (Catharanthusroseus) from Pakistan. DOI 10.1007/s00705-012-1498-1.

(Impact Factor 2.111)

3. Afzal M; **Shahid A A;**ShehzadiA; NadeemS andHusnain T. (2012). RDNAnalyzer: A tool for DNA secondary structure prediction and sequence analysis. Bioinformation, 8(14): 687-690.(Impact Factor = 1.150)

4. Israr, M; **Shahid, A. A**; Rahman, Z; Shahzad, M S; Ullah,O. and Husnain, T. (2012). Punjabi population data for seven X-chromosome short tandems repeat (X-STR) loci using a new miniplex system. African Journal of Biotechnology, 11(46): 10513-10516. (Impact Factor = 0.573)

5. Fatima S; Anjum T; Bajwa, R and **Shahid A. A**(2012). Identification of indigenous *Xanthomonas*isolates through 16S rRNA gene amplification and SDS PAGE analyses. African Journal of Microbiology Research, 6(15): 3651-3655. (Impact Factor = 0.533)

6. **Shahid, A.A.,**Rao A.Q., Bakhsh, A and Husnain, T (2012). Entomopathogenic Fungi as Biological Controllers: New Insights into their Virulence and Pathogensicity, Archives of Biological Sciences, Belgrade, 64 (1): 21-42.
(Impact Factor = 0.356)

7. Javed S., **Shahid A. A.,** Muhammad, H. S., Umeera, A., Ahmad, R. and Mushtaq. S. (2012). Nutritional, Phytochemical Potential and Pharamacological evaluation of *Nigella Sativa* (Kalonji) &*TrachyspermumAmmi*(Ajwain). Journal of Medicinal Plant Research, 6(5): 786-775. (Impact Factor = 0.879)

8. Bakhsh A, Rao AQ, Khan G.A., Rashid B,**Shahid AA**andHusnain T (2012). Insect Resistance Studies of Transgenic Cotton Cultivar Harboring cry1Ac and cry2A. TarımBilimleriAraştırmaDergisi 5 (2): 167-171. (Citation 3)

9. Rahman M., Muhammad N., **Shahid A. A**. andHusnain T. (2012).Allelopathic effects of transgenic rice having *cry1Ac* and *cry2A* genes on seed germination of wheat and chickpea crops.New Horizons in Science & Technology (NHS&T), 1(3):71-75.

10. RahmanM., Muhammad N., **Shahid A. A.** and Husnain T. (2012). Elite transgenic lines of basmati-370 revealed high level of lodgingresistance under field conditions.Pure Applied Biology. 1(2): 22-27.

11. Khan M A U., **Shahid A.A.,**Rao A.Q and Husnain, T (2011). Role of Epicuticular Waxes in the Susceptibility of *Gossypium arboretum* cotton. African Journal of Biotechnology, 10(77): 17868-17874. (Impact Factor = 0.573)

12. Bakhsh A., Aasim M., Rao A.Q., **Shahid A A.**, Khawar K.M., Ozcan S., and Husnain T (2011) Paradigms of biotechnology in Pakistan . Current Opinion in Biotechnology p s85, 22S: S15–S152.

13. Muhammad, N., Rahman, M., **Shahid, A. A.,**Husnain, T and Riazuddin S. (2010) Risk Assessment and Biosafety Studies of Transgenic Bt Rice (*Oryza sativa* L.), Journal of Agricultural Science and Technology-Iran , 4(4) 29:1-9. (Impact Factor = 0.255)

14. **Shahid, A. A.**, Chaudhry, B., Rehman, M. and Riazuddin, S. (2009). Detection of anti-fungal genes in chickpea (*Cicerarietinum*L.) and their effects on fungal growth. Emirates Journal of Food and Agriculture, 21 (2): 34-41.

15. Rao, A. Q; Bakhsh, A; Kiani, S; Shahzad, K; **Shahid, A. A**; Husnain, T and Riazuddin, S. (2009). The myth of plant transformation. Biotechnology Advances, 27:753–763. (Impact Factor = 9.64) (Citation 28)

16. **Shahid, A. A**., Husnain, T and Riazuddin, S. (2008). Ascochyta blight of chickpea: Production of phytotoxins and disease management. Biotechnology Advances, 26: 511-515. (Impact Factor = 9.64) (Citation 6)

17. Rahman, M., Rashid, H.,**Shahid, A. A**., Bashir, K., Husnain, T. and Riazuddin, S. (2007). Insect resistance and risk assessment studies of advanced generations of Basmati rice expressing two genes of Bacillus thuringiensis. Electronic Journal of Biotechnology. ISSN:0717-3458, 10(2): 240-251. (Impact Factor = 0.865)(Citation 6)

18. Rao, A.Q., Hussain, S.S., Shahzad, S.M., Bokhari, Y.A., Raza, M.H., Rakha, A., Majeed,A., **Shahid, A.A**.,Saleem, Z., Husnain, T. and Riazuddin, S. (2006). Somatic Embryogenesis in Wild relatives of Cotton (Gossypium spp.). Journal of ZhejiangUniversity Science B, 7(4): 291-298. (Impact Factor = 1.04) (Citation 14)

19. **Shahid, A. A**., Nasir, I. A., Zafar, A. U., Chaudhry, B. and Riazuddin S. (2004). The CambBiopesticides: Preparations, Uses and Comparative Studies with Chemical Pesticides. In: ed. G. R. Pathade and P. K. Goel, Biotechnological Methods in Environmental Management, pp 260-282, ABD Publishers Jaipur, India.

20. Shahzad, M. S., Abbas, S. Y., Rao, A. Q., Raza, M. H., Obaidullah, Rehman, Z.,**Shahid A. A**., Ahmed Z., and Riazuddin, S. (2004). Population Studies of STR Markers Loci D3S1358, D5S818, D7S820, D18S51 and FGA (FIBRA) in Sindhi and NWFP Populations of Pakistan for Forensic use. ArchiwumMedycznySadowej i Kryminologii, Poland. 4: 215-22. (Impact Factor = 5.88)

21. **Shahid.A. A.** and Riazuddin, S. (1999). Isolation of bacteria possessing antifungal activities against *Ascochytarabiei,* a chickpea fungus. International Chickpea and Pigeonpea Newsletter, 6:16-17.

22. **Shahid, A. A**. and Riazuddin, S. (1998). Presence of Solanapyrone C in blight infected chickpea plants. International Chickpea and Pigeonpea Newsletter, 5:15-16.

23. Javed, N. Chohan, A.R. and **Shahid, A. A.** (1989). Evaluation of various nematicides against root-knot nematode, *MeloidogyneJavanica* on tomato, International Nematology Network Newsletter 6(3): 34-36.

Accepted (Evidence Attached):

24. Kamran ShehzadBajwa, **Shahid A A**, Abdul QayyumRao, Muhammad Sarfrazkiani, Muhammad Aleem Ashraf , Abdelhafiz Adam Dehab, Muhammad AzmatUllah Khan, AgungNugrohoPuspito, AsiyaAftab, Aftab Bashir and TayyabHusnain (2012). Expression of Calotropisproceraexpansin gene CpEXPA3 enhances cotton fibre strength. Australian Journal of Crop Science. (Impact factor: 1.63)

25. Dahab AA, Saeed M, Mohamed BB, Ashraf M A, Puspito AN, BajwaKS, **Shahid AA**, and Husnain T (2012). Genetic diversity assessment of cotton (Gossypiumhirsutum L.) genotypes from Pakistan using simple sequence repeat markers. Australian Journal of Crop Science. (Impact factor: 1.63)

26. **ShahidAA**. Khalid S. Bakhsh A. Samiullah T R. Husnain T and Riazuddin S. (2012).Risk Assessment Studies of Transgenic Bt diet on Rats. Pakistan Journal of Zoology: 44. (Impact Factor = 0.145)

27. A. Q. Rao, K. Sh. Bajwa, A. N. Puspito, M. A. Ullah Khan, M. A. Abbas, M. Rehman, A. Bakhsh, **A. A. Shahid**, 1.A. Nasir and T. Husnain.(2013). Journal of Agricultural Science and Technology Islamic Republicof Iran.

Book Published:

28. Rao A.Q, **Shahid A.A** and Husnain.T (2011). Impact of PHY B Gene Transformation in Physiology and Yield of Cotton. LAP Lambert Academic Publishing GmbH & Co. KG, Germany, ISBN (978-3-8465-0191-7).

29. Khan A, **Shahid A.A** and Rao A.Q (2011). Epicuticular Wax as a Mechanical Barrier in Transmission of CLCuV. VDM Verlag Academic Publishing GmbH & Co. KG ISBN 978-3-639-38065-1.

30. Ibrahaim A and **Shahid A.** A (2011). Management of root-knot nematodes by using bio-pesticides. LAP Lambert Academic Publishing GmbH & Co. KG, Germany, ISBN (978-3-8465-2662-0).

31. **Shahid, A. A** and Riazuddin S. (2009). Chickpea blight (A. rabiei): Production of phytotoxins and defence gene. VDM Verlagsservicegesellschaft mbH Dudweiler Landstr. 99 D - 66123 Saarbrücken Handelsregister Amtsgericht Saarbrücken HRB 1704 Geschäftsführer: Germany, ISBN 978-3-639-19183-7.

National Publications:

32. Rahman M, Rao A. Q., Batool F., Azam S., **Shahid A. A.** and Husnain T (2012). Transgene copy number and phenotypic variations in transgenic Basmati rice.The Journal of Animal & Plant Sciences, 22(4): 1004-1013. (Impact Factor = 0.585)

33. Ibrahim A., **Shahid A. A**., Shafiq M and Haider M. S. (2012). Management of root knot nematodes on the turnip plant *(brassica rapa)* by using fungus *(trichodermaharzianum)* and neem*(azadirachtaindica)* and effect on the growth rate. Pakistan Journal of Phytopathology. 24(2): 101-105.(HEC Category=Y)

34. Bakhsh, A., Rao, A. Q., **Shahid, A. A**., Husnain, T and Riazuddin, S. (2010). CaMV35S is a Developmental Promoter Being Temporal and Spatial in Expression Pattern of Insecticidal Genes (*Cry1Ac&Cry2A)* in Cotton. Australian Journal of Basic and Applied Sciences, 4(1): 37-44. (Citation: 4)

35. Bakhsh, A., Rao, A. Q., **Shahid, A. A**, Husnain, T and Riazuddin S. (2009). Insect Resistance and Risk Assessment Studies in Advance Lines of Bt Cotton Harboring *Cry1Ac* and *Cry2A* Genes. American-Eurasian J. Agric. & Environ. Sci., 6 (1): 01-11.

36. **Shahid, A. A.,**Chaudhry, B. and Riazuddin S. (2003). Pathogenicity of *Metarhiziumanisopliae* on *Heliothisarmigera* and *Bemisiatabaci*.Pakistan Journal of Phytopathology 15(1-2): 33-36. (HEC Category=Y)

37. **Shahid, A. A.,**Sattar, A., Chaudhry, B. and Riazuddin S. (2003). Determination of Protein Virulemce Factors and Pathogenicity of Entomopathogenic Fungi. Pakistan Journal of Biochemistry and Molecular Biology, 36(2): 100-107.

38. Husnain, T., Bokhari, S.M., Riaz, N., Fatima, T., **Shahid, A.A**., Bashir, K., Jan, A. and Riazuddin, S. (2003). Pesticidal Genes of *Bacillus thuringienesis*in Transgenic Rice Technology to Breed Insect Resistance. Pakistan Journal of Biochemistry and Molecular Biology, 36(3): 133-142.

39. **Shahid, A. A**., Nasir, I. A., Zafar, A. U., Sumrin, A., Chaudhry, B. and Riazuddin. S. (2003). The use of CAMB biopesticides to control pests of rice (*Oryza sativa*). Asian journal of Plant Sciences 2(15-16): 1079-1082.

40. Bokhari, S. Y. A., Shahzad, M. S., Qayyum, A., Raza, M. H., Arshad, F., Shafique, M., Rahman, Z., **Shahid, A. A**., Ahmad, Z. and Riazuddin, S. (2003). Development of STR Multiplex System (D5S818, D7S820 And D18S51) for Forensic Casework. Pakistan Journal of Zoology, 23: 167-174. (Impact Factor = 0.145)

41. Zafar, A. U., Nasir, I. A. and **Shahid, A. A.,**Rahi, M. S. and Riazuddin. S (2002). Performance evaluation of CAMB biopesticide to control cabbage butterfly (*Pierisbrassicae*) in cauliflower crop. Pakistan Journal of Biological Sciences 5(10): 1041-1043.

42. **Shahid, A. A.** and Riazuddin, S. (2000). Chickpea blight caused by Ascochytarabiei and Isolation of phytotoxic compounds from culture filtrates of fungus. Pakistan Journal of Biochemistry and Molecular Biology, 33: 3-7.

43. **Shahid, A. A.**, Strange, R. N. and Riazuddin, S. (1999). Toxicity and solanapyrones comparison of culture filtrates among two isolates of Ascochytarabiei. Pakistan Journal of Phytopathology, 11(1): 17-21. (HEC Category=Y)

44. Latif, Z., **Shahid, A. A.** and Riazuddin, S. (1998). Production of Phytotoxins in chickpea plants infected with *Ascochytarabiei***.**Pakistan journal of Biochemistry and Molecular Biology, 31:48-60.

45. **Shahid, A. A.**, Latif Z. and Riazuddin, S. (1998). Comparison of phytotoxin (s) production among two isolates of *Ascochytarabiei* varying in virulence. Pakistan Journal of plant Science, 4 (1): 1-11.

46. Latif, Z.,**Shahid, A. A.** and Riazuddin, S. (1995). Role of *Ascochytarabiei* virulence factor in breeding resistance to chickpea. Proceeding of the forth International symposium workshop on the application of Molecular Biology Research in Agriculture, Health and Environment. CEMB, Lahore, Pakistan. 149-154.

47. Rahman, Z., **Shahid, A. A.** and Riazuddin, S. (1994). Plant Fungus Interaction: Chickpea Blight. Pakistan Journal of Agricultural Research, 15: 294-296. (HEC Category=Z)

48. **Shahid, A. A.** and Chohan, A.R. (1993). Effect of root-knot nematode, *Meloidogynejavanica* on nodulation and root growth of chickpea. PunjabUniversity Journal of Zoology, 8: 69-70.

49. Latif, Z**., Shahid, A. A.,**Rahman, Z. and Riazuddin, S. (1991). Molecular and chemical basis of virulence in chickpea blight caused by *Ascochytarabiei*. Proceeding of SAARC Symposium/Workshop on the Biological Control of Agriculturally Important Plant Pests

held at Centre for Applied Molecular Biology, Canal Bank Road, Lahore, December 16-18, 1991.

50. **Shahid, A. A.,**Chohan, A.R. and Javaid, N. (1990). Response of different chickpea cultivars to root- knot nematode *Meloidogynejavanica.*Pakistan Journal of Zoology 22(3): 311-313. (Impact Factor = 0.145) (Citation 2)

SYMPOSIUM/CONFERENCE ATTENDED:

- 3rd International Conference on Agriculture and Animal Sciences. BangkokThiland (November, 24-25, 2012).
- One day Symposium on Applications of Biotechnology inHealth and Agriculture, GC University Faisalabad (March28, 2012).
- International Conference on Safe Food and Human Health, GC University Faisalabad (January 10-11, 2012).
- 2nd International Training Workshop on DNA Microarray for Gene Expression, CEMB (March 07-11, 2011).
- International Training Course on Microarray Technology for Gene discovery and Expression, CEMB (October 05-09, 2009).
- Symposium-2009, CEMB (March 09-13, 2009).
- Bio-Forum 2008, CEMB (March 24-29, 2008).
- 17th New Phytologist Symposium on Systems Biology and the Biology of Systems, Buxton, UK (September 13-14, 2007).
- BINASIA-Pakistan National Workshop, CEMB, Lahore (March, 11-12 2006).
- Lahore Bio-Forum, CEMB, Lahore (March 13-15, 2006).
- BINASIA-Pakistan National Workshop, CEMB, Lahore (March, 11-12 2006).
- Lahore Bio-Forum, CEMB, Lahore (March 13-15, 2006).
- 18th FAOBMB Symposium on Genomics and Proteomics in Health and Agriculture. Institute of Biochemistry and BiotechnologyUniversity of the Punjab, Lahore (November 20-23, 2005)
- Pre-18th FAOBMB Symposium Sattelite Workshop on Bio-informatics. CEMB, Lahore (November 14-19, 2005)
- International Seminar on Rice crop, Rice Research Institute, Kala Shah Kaku, Lahore (October 2-3, 2005).
- Workshop on Implementation of National Biosafety Guidelines, NIBGE, Faisalabad (September 1, 2005).
- Second National conference of biology, Biology block, GovernmentCollegeUniversity, Lahore (April 22-24, 2004).
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