

# **CURRICULUM VITAE**

**Dr. Javed Iqbal**

**Professor Emeritus**

**Director**

**School of Biological Sciences**

**University of the Punjab**

**Lahore.**

**DR. JAVED IQBAL**  
**PROFESSOR EMERITUS**  
**SUMMARY OF ACADEMIC ACHIEVEMENTS**

I joined Botany Department, University of the Punjab as lecturer on 01.02.1968 and retired as Meritorious Professor and Chairman, Department of Botany on 25.10.2002. After my retirement I am serving as one of the Director of School of Biological Sciences to-date.

Thus my teaching and research career spans over 40 years. During this period I taught Plant Biochemistry, Cell Biology, Plant Anatomy as general courses and Plant Morphogenesis, Radiation Botany, Plant Tissue Culture and Plant Biotechnology as specialized courses to M.Sc, M.Phil and Ph.D. students. In research in my early years I worked in areas of Radiation Botany and Biochemical markers of growth and differentiation. In the last two decades my main area of research has been Plant Cell Tissue and Organ Culture, Molecular Markers, Somaclonal variants, transformation and resistance development against diseases in plants.

Thirty Ph.D. students successfully completed their work under my supervision. At the moment four Ph.D. students are working under my guidance at SBS. I completed fourteen research projects as principal investigator sponsored by different national and international organizations.

I have published 171 research papers, of which 49 were published in peer reviewed foreign journals and the rest 122 in local refereed journals. Out of 171 publications 97 are in impact factor journals, with total impact factor of 144.507 (JCR-2012; citations 1423 upto 31.12.2016).

I have been continuously awarded Research Productivity allowance for years 2002-2014 and among the 138 scientists in Biological Sciences, I ranked fourth with 1169 points in "Productive Scientists of Pakistan (2007)" published by Pakistan Council for Science and Technology.

I have immensely contributed in development of Biology Curricula and editing of books as member National Review Committee, at Secondary, Higher Secondary and of Botany at B.Sc, M.Sc level in the country. As member and expert of large number of bodies and organizations in the University of the Punjab, other universities and National Organizations, has contributed in planning policies regarding improvement in teaching and research of Biological Sciences in the country. I was mentor of regular Ph.D. programme of the University introduced in 2001.

I have actively worked in procuring funds for infrastructure development of University in general and School of Biological Sciences in particular. Overall funds of about Rs.600.00 millions have been procured from HEC by writing successful PC-Is upto 2007. I established Punjab University Seed Centre and played a vital role in establishing School of Biological Sciences.

In recognitions of my established scholarship and meritorious services to the variety, I was appointed **Professor Emeritus** (Botany) by the Punjab University.

## CURRICULUM VITAE

### PERSONAL

Name	JAVED IQBAL
Father's Name	Muhammad Aslam Qureshi
Date of Birth	26th October, 1942
Marital Status	Married with three children
Religion	Islam
Nationality	Pakistani

### ACADEMIC

#### **A) Present Position:**

1. Director,  
School of Biological Sciences  
University of the Punjab

#### **B) Educational Qualification:**

B.Sc	Government College, Lahore 1962
B.Sc.(Hons) Botany	Government College, Lahore 1963
M.Sc Botany	Punjab University, Lahore 1964
Ph.D. Botany	Punjab University, Lahore 1969

### Service Record:

01.07.2010 to todate	Director	School of Biological Sciences
01.03.2010 01.07.2009 to 30.06.2010	Professor Emeritus Director (Contract for one year)	Botany Department, P.U. Lahore School of Biological Sciences University of the Punjab
01.07.2007 to 30.06.2009	Director (Contract for two years)	School of Biological Sciences University of the Punjab
01.07.2005 to 30.06.2007	Director (Contract for two years)	School of Biological Sciences University of the Punjab
01.07.2002 to 30.06.2005	Director (Contract for three years)	School of Biological Sciences University of the Punjab
02.07.2002	Meritorious Professor Till retirement (25.10.2002)	Botany Department, P.U. Lahore.
1997-2002	Chairman	Botany Department, P.U. Lahore.
1990-2002	Professor	Botany Department, P.U. Lahore.
1982-1990	Associate Professor	Botany Department, P.U. Lahore.
1979-1982	Assistant Professor	Botany Department, P.U. Lahore.
1968-1979	Lecturer	Botany Department, P.U. Lahore.

## C) RESEARCH INTERESTS:

### 1. Radiation Botany:

- 1.1. Morphological, physiological and biochemical aspects of gamma irradiated plants.
- 1.2. Radiosensitivity of crop plants.

### 2. Plant Morphogenesis:

- 2.1. Biochemical indices during differentiation of tissues and organs.
- 2.2. Underlying Biochemical causes of heavy metal toxicity. (Barium, Lead, Cadmium & Mercury).

### 3. Biotechnology:

- 3.1. Plant Cell, Tissue and Organ Culture.
- 3.2. Molecular markers – somaclonal variants, disease resistance.
- 3.3. Transformation – *Agrobacterium tumefaciens*; Particle bombardment.
- 3.4. Fermentation – Production of citric acid/raw starch hydrolyzing enzymes/ production of ethanol

## D) POST-DOCTORAL AWARDS:

### 1. UNESCO Award (1971-72)

- Worked in Institute of Experimental Botany, Prague, Czechoslovakia. (Dr. Milan Kutaek).
- Gamma irradiation effects – soluble proteins – free and bound amino acids – corn.

### 2. Alexander von Humboldt Stiftung, Germany (1974-76)

- Worked in Department of Biology II, Ulm University, Germany. (Prof. Dr. H. Schraudolf).
- Biochemical markers of growth and differentiation: Isozymes (Shikimate dehydrogenase – Peroxidase) – protein pattern – poly A-sequences – fern Anemia.

### 3. Alexander von Humboldt Stiftung, Germany (1980-81)

- Worked in Department of Biology II, Ulm University, Germany.(Prof. Dr. H. Schraudolf)
- Biochemical markers of growth and differentiation: mRNA populations – *in vitro* translation – Characterization of tubulin – Antitubulin antibodies – fern Anemia.

4. **Alexander von Humboldt Stiftung, Germany (1993)**

- Worked in Department of Cell-Biology in Kaiserslautern University, Germany. (Prof. Dr. N. Nagl)
- Transformation – *Agrobacterium tumefaciens* – Phaseolus.

5. **I.P.K/AvH, Germany (1999)**

- Worked in the Department of Molecular Cell Biology (Gene-transfer group) in the Institute of Plant Genetics and Crop Research, Gatersleben, Germany.
- (Dr. F. Altpeter – group leader – Gene transfer group).
- Transformation – Callogenesis – Organogenesis – transformation – Particle bombardment – Lolium.

**E) RESEARCH PROJECTS (AS PRINCIPAL INVESTIGATOR)**

1. **Completed:**

- 1.2. Enhance sugarcane production in Pakistan by Modern Breeding Technology (2008-2011): Funded by Pakistan – US Science and Technology Programme.
- 1.3. Micropropagation of jojoba (*Simmondsia chinensis*) - an oil yielding plant of high commercial value (2000-2002). Funded by Pakistan Science Foundation.
- 1.4. Biochemical and Molecular investigations on somaclonal variants and induced mutants of Potato (1999-2000). Funded by Punjab University.
- 1.5. Biochemical markers of sex differentiation in Jojoba (*Simmondsia chinensis*). Funded by Agricultural Research Council (1998).
- 1.6. Biochemical and molecular markers of somaclonal variants in sugarcane(1996-98). Funded by Punjab University.
- 1.8. Commercial production of disease free potato seed (1994-95). Funded by Punjab University.
- 1.9. Protoplast cultures and somatic hybridization in sugarcane (1994-95). Funded by Punjab University.
- 1.10. Sugarcane cell cultures: Isolation of protoplast, regeneration of cell cultures, embryos and somatic hybridization (1989-92). Research project funded by National Scientific Research and Development Board (NSRD - Bio-I, P.U).

- 1.11. Biochemical investigations on growth and differentiation of chickpea (*Cicer arietinum* L.) callus cultures (1989-91).  
A coordinated research programme funded by Pakistan Atomic Energy Commission, PAEC-Res-II (4).
- 1.12 Morpho-physiological effects of gamma irradiation on crop plants (1975-78).  
A research project funded by Pakistan Science Foundation PSF. Bio (5), 1975.
- 1.13. Morpho-physiological effects of gamma irradiation on rice (1972). A research project funded by Govt. of Pakistan under “Young Scientists” programme.

**F) PC1s PREPARED, GOT APPROVED AND EXECUTED**

<b>S.#</b>	<b>Project</b>	<b>Period</b>	<b>Amount (in million Rs.)</b>	<b>Funding Agency</b>
01.	“Strengthening of Science Departments” University of the Punjab	1999-2002	37.470	HEC
02.	Establishment of “School of Biological Sciences” University of the Punjab	2002-2003	150.000	Government of Punjab
03.	Revised PC1 “School of Biological Sciences” University of the Punjab	2003-2005	171.447	Government of Punjab
04.	Hostel of Visiting Faculty, University of the Punjab	2004-2005	15.035	HEC
05.	Hostel for Students Ph.D. University of the Punjab	2005-2006	27.160	HEC
06.	“Strengthening of the School of Biological Sciences” University of the Punjab	2008-2013	377.328	HEC

**G) TOTAL IMPACT FACTOR (UPTO APRIL, 2013) 144.507**  
(based on 2012 JCR Science edition)

**H) i. RESEARCH PRODUCTIVITY ALLOWANCE:**

For years 2002-2006, 2008, 2010-2014 from PCST

- ii. **PRODUCTIVE SCIENTISTS OF PAKISTAN-2007:**  
**Among the 138 listed scientists in Biological Sciences, I ranked four with 1169 points.**

**I) DETAILS OF PUBLISHED RESEARCH WORK:**

1.	Total Published Papers	171
a.	In Peer Reviewed Foreign Journals	49
b.	In Impact Factor Journals (Foreign & Local)	97
c.	In Local Refereed Journals	122
2	Papers in Press	05
3	Papers submitted to different journals	04
4	Manuscripts ready for submission to relevant journals	04

(For Titles, year of publication, See Appendix-I)

**J) HEC APPROVED PH.D. SUPERVISOR IN BIOLOGICAL SCIENCES:**

**K) POST-GRADUATE RESEARCH GUIDANCE:**

1.	<b><u>Guidance of Ph.D Work:</u></b>	
1.1.	Awarded	30
1.2.	Under progress	04

(For details, see Appendix-II)

2.	<b><u>Guidance of M.Phil Work</u></b>	
2.1.	Awarded (Appendix-II-c).	03

3.	<b><u>Guidance of M.Sc Work:</u></b>	
3.1.	1973-2006: 102 M.Sc. students have worked under my guidance.	

**L) TEACHING EXPERIENCE:**

- In the past 48 years, since my joining the University, I have been giving the following courses to Post-graduate students.

1. **General Courses:**
  - 1.1. Plant Biochemistry
  - 1.2. Cell Biology
  - 1.3. Plant Anatomy
2. **Special Courses:**
  - 2.1. Plant Morphogenesis
  - 2.2. Radiation Biology
  - 2.3. Plant Biotechnology for sustainable development.
  - 2.4. Plant Tissue Culture & its agricultural applications.
  - 2.5. Recombinant DNA Technology.

**M) OTHER ACADEMIC ACTIVITIES:**

**1. Editor:**

- 1.1. Text Book of Biology for Class-XI. (Punjab Text Book Board).
  - 1.2. Practical Guide Book for Biology for Class-XI. (Punjab Text Book Board).
  - 1.3. Model Text Book of Biology at secondary level. (Being developed by Ministry of Education, Islamabad).
- 2. Member National Review Committee - Biology, Ministry of Education, Islamabad.**

**Work Accomplished:**

- 2.1. Review of lesson plans/units in the subject of Biology at Secondary level.
- 2.2. Review of Elementary Science Text-book for classes VI-VIII by Balochistan Text Book Board, Quetta.
- 2.3. Review of Elementary Science Text-book for classes VI-VIII by NWFP Text Book Board, Peshawar.
- 2.4. Review and Editing of Elementary Science Text Books for classes VI-VIII, by Sind Text Book Board, Jamshoro.
- 2.5. Review of manuscripts of supplementary readers for children on different Science subjects.
- 2.6. Biology lesson plans for use of Science Teachers and students at secondary level.
- 2.7. Review of Biology manuscripts for Secondary classes by Punjab Text Book Board.
- 2.8. Review of General Science (English) for classes IX-X by Punjab Text Book Board.
- 2.9. Review of Biology manuscript for class XI.

**N) SYMPOSIA AND CONFERENCES:**

- Participated and read articles in numerous international and National Symposia and Conferences.

**O) MEMBER STATUTORY BODIES (PUNJAB UNIVERSITY/OTHER UNIVERSITIES):**

- a) Convenor Board of Studies in Botany, Punjab University (1997-2002).
- b) Member, Academic Council, Punjab University (1990-2002).
- c) Member, Senate, Punjab University (1990-2002).
- d) Member, Structure Committee, Punjab University (1990-1998).
- e) Member, Equivalence Committee, Punjab University (1992-2002).
- f) Member, Disciplinary Committee, Punjab University (1994-1999).
- g) Member Elect, Library Committee (from Academic Council), Punjab University (1995-1997).
- h) Member, Board of Studies - Biotechnology/Biochemistry, Punjab



- University (1999-2001).
- i) Member, Board of Intermediate and Secondary Education, Sargodha (1997-1999; A nominee of the Vice-Chancellor, University of the Punjab).
  - j) Member, Board of Intermediate and Secondary Education, Faisalabad (1998-2000; A nominee of the Vice-Chancellor, University of the Punjab).
  - k) Member, House Allotment Committee, Punjab University (1996-2000).
  - l) Chairman, House Allotment Committee, Punjab University (2001-2002).
  - m) Convener, Self Cultivation Committee, Punjab University (1996-2002).
  - n) Member, Board of Studies in Botany, Islamia University, Bahawalpur (1998-2002).
  - o) Member, Board of Studies in Botany, Government College, Lahore (1998-2000, 2000-2002).
  - p) Member, Board of Studies in Botany, Lahore College for Women, Lahore (1999-2002).
  - q) Member, Board of Advanced Studies and Research, University of Baluchistan Quetta (1994-1995).
  - r) Member Elect, Board of Advance Studies and Research (from Academic Council) Punjab University (2000-2002).
  - s) Member Board of Studies in Botany, AJK, University Muzaffarabad (1999-2001)
  - t) President, Pakistan Botanical Society, 1998-2000.
  - u) Member Affiliation Committee, Punjab University (2000-2002).
  - v) Chairman, Doctoral Programme Coordination Committee, Punjab University (2001-2002).
  - w) Member, Joint Forum of Collaboration between Lahore Chamber of Commerce and Industry and University of the Punjab (2002).
  - x) Member/Secretary, National Core Group on Biology (2002-2003).
  - y) Member (Expert) Board of Studies: Balochistan University of Information Technology, Engineering and Management Sciences, Quetta (2008-2011).
  - z) Member Syndicate, G.C. University, Faisalabad (2015-2018).

(DR. JAVED IQBAL)  
Meritorious Professor (R)  
Director  
School of Biological Sciences,  
Punjab University.

**TOTAL IMPACT FACTOR  
BASED ON 2012 JCR SCIENCE EDITION**

NAME OF JOURNAL	IMPACT FACTOR	NO. OF PAPERS	TOTAL IMPACTS
ACTA BIOTECHNOL (Presently Engineering in Life Sciences)	1.633	1	1.633
AFRICAN J. OF BIOTECHNOL.	0.573	1	0.573
APPL MICROBIOL BIOTECH	3.689	1	3.689
BIOL FERTIL SOIL	2.505	1	2.505
BIOL PLANTARUM	1.692	1	1.692
BIORESOURCE TECHNOL	4.750	5	23.750
BRAZILIAN JOURNAL OF BOTANY	0.648	2	1.296
CAN.J. MICROBIOL	1.199	1	1.199
CEREAL RES COMMUN	0.549	1	0.549
DEV GROWTH DIFFER	2.397	1	2.397
ELECTRON J BIOTECH	0.827	3	2.481
ENVIRON EXP BOT (FORMELY RADIATION BOTANY)	2.578	8	20.624
FOLIA MICROBIOL	0.680	1	0.680
GENETICS AND MOLECULAR RESEARCH	0.994	1	0.994
I J B (INT. J. BIOSCIENCES)	0.076	1	0.076
J. ANIM. PLANT SCI.	0.638	3	1.914
J ENVIRON SCI – CHINA	1.773	1	1.773
J HAZARD MATER	3.925	1	3.925
J PHYTOPATHOL	3.119	2	6.238
LETT APPL MICROBIOL	1.629	2	3.258
MOL BIOL REP	2.506	1	2.506
MOL BREEDING	2.018	1	2.018
PAKISTAN J AGRI RES.	0.240	2	0.48
PAKISTAN J BOT	0.872	47	40.984
PLANT CELL TISS ORG	3.633	2	7.266
PLANT SOIL	2.638	1	2.638
PLANTA	3.347	1	3.347
PROCESS BIOCHEM	2.414	2	4.828
WORLD J MICROB BIOT	1.262	2	2.452
<b>TOTAL</b>		<b>97</b>	<b>144.507</b>

**DR. JAVED IQBAL**  
Professor Emeritus

**PUBLISHED PAPERS:**

**a. Peer Reviewed Foreign Journals:**

	Title	Cited by	Year
1.	Development of an RAPD-based SCAR marker for smut disease resistance in commercial sugarcane cultivars of Pakistan YBPJI Mehwish Khan Crop Protection 94 (1), 166-172		2017
2.	Association mapping validates previously identified quantitative trait loci for salt tolerance in rice ( <i>Oryza sativa</i> L.) JI Md.Shah Kamal Khan,Muhammad Saeed Mol Breeding 36 (12), 172-183		2016
3.	Quantitative trait locus mapping for salt tolerance at maturity stage in indica rice using replicated F2 population. J Khan Md. Shah Kamal, Saeed M & Iqbal Braz.J.Bot. 39, 641-650		2016
4.	Identification of quantitative trait loci for Na <sup>+</sup> , K <sup>+</sup> and Ca <sup>++</sup> accumulation traits in rice grown under saline conditions using F2 mapping population. SMIJ Md. Shah Kamal Khan Braz. J. of Bot. 38 (3), 555-565		2015
5.	Genetic analysis of resistant gene analogues from a sugarcane cultivar resistant to red rot disease J Hameed, U., Pan, Y.B. and Iqbal Journal of Phytopathology 163, 755-763		2015
6.	Comparative study of agronomic traits of different rice varieties grown under saline and normal conditions. M Khan, K.S., Md, Iqbal, J. and Saeed J. Anim. Plant Sci. 24 (2), 632-640		2014

Title	Cited by	Year
<p>7. Isolation and partial purification of toxin from colletotrichum falcatum. The causal agent of red rot in sugarcane. J Alvi, A.K. and Iqbal Pak. J. Bot. 46 (3), 1087-1091</p>		2014
<p>8. Genetic variability among the brown rust resistant and susceptible genotypes of sugarcane by RAPD technique. J Muhammad, K., Afghan, A., Pan, Yong-Bao and Iqbal Pak. J. Botany 45 (1), 163-168</p>	2	2013
<p>9. Comparative study of grain yield and biochemical traits of different rice varieties grown under saline and normal conditions. M Khan, K.S., Iqbal, J. and Saeed J. Anim. Plant Sci.: 23 (2), 575-588</p>	5	2013
<p>10. Use of RAPD markers to characterize commercially grown rust resistant and susceptible cultivars of sugarcane (Saccharum spp.). J Ali, W, Muhammad, K., Nadeem, M.S., Inamullah, Ahmad H. and Iqbal International Journal of Biosciences (IJB); 3 (2), 115-121</p>		2013
<p>11. Genetic analysis of somaclonal variants and induced mutants, of Potato (Solanum Tuberosum L.) C.V. Diamant using RAPD Markers. H Afrasiab, J and Iqbal Pak. J. Bot; 44 (1), 215-220</p>	10	2012
<p>12. Biochemical and molecular characterization of somaclonal variants and induced mutants of potato (Solanum tuberosum L.) cv. Desire. J Afrasiab, H., and Iqbal Pak. J. Botany. 44 (5), 1503-1508</p>	4	2012
<p>13. In vitro direct plant regeneration from cultured young leaf segments of sugarcane (Saccharum officinarum L.) J Ali, S., Khan, M.S. and Iqbal J. Anim. Plant Sci.: 22 (4), 1107-1112</p>	6	2012

Title	Cited by	Year
<p>14. Use of simple sequence repeat markers for DNA fingerprinting and diversity analysis of sugarcane (<i>Saccharum spp.</i>) cultivars resistant and susceptible to red rot. J Hameed, U., Pan, Y.B., Muhammad, K., Afghan, S. and Iqbal Gen. and Mol. Res. 11 (2), 1195-1204</p>	11	2012
<p>15. Identification of two sugarcane mosaic virus (scmv) variants from naturally infected sugarcane crop in Pakistan. J Haider, M.S., Afgharn, S., Riaz, M., Javed, A. J. Rashid, N. and Iqbal Pak. J. Bot. 43 (2), 1157-1162</p>	5	2011
<p>16. Probing genetic diversity to characterize and rot resistance in sugarcane. AS Mumtaz, D Nayab, K Iqbal, J. and Shinwari Pak. J. Bot 43 (5), 2513-2517</p>	2*	2011
<p>17. Development and photosynthetic regulation of <math>\delta</math>-endotoxin reveals that engineered sugarcane conferring resistance to 'dead heart' contains no toxins in cane juice. J Khan, M.S., Ali, S. and Iqbal Mol. Biol. Rep. 38 (4)</p>		2011
<p>18. Effect of interaction of 6-benzylaminopurine (BA) and sucrose for efficient microtuberisation of two elite potato (<i>Solanum tuberosum</i> L.) cultivars. Desiree and Cardinal. J Aslam, A., Ali, A., Naveed, H. H., Saleem, A. and Iqbal African J. of Biotechnology 10 (59), 12738-12744</p>	5	2011
<p>19. Combined effect of cytokinin and sucrose on in vitro tuberization parameters of two cultivars i.e. Diamant and Red Norland of Potato (<i>Solanum tuberosum</i>). J Aslam, A. and Iqbal Pak. J. Bot. 42 (2), 1093-1102</p>		2010
<p>20. In vitro techniques and mutagenesis for the genetic improvement of potato cvs. Desiree and Diamant. J Afrasiab, H. and Iqbal Pak. J. Bot. 42 (3), 1629-1637</p>	13	2010

	Title	Cited by	Year
21.	Genotype independent in vitro regeneration system in elite varieties of sugarcane. MS Ali, Safdar, Iqbal, J. and Khan Pak. J. Bot., 42 (6), 3783-3790	9	2010
22.	An efficient, short and cost-effective regeneration system for transformation studies of sugarcane ( <i>Saccharum officinarum</i> ). J Shah, A.H., Rashid, N., Haider, M.S., Saleem, F., Tahir, M. and Iqbal Pak. J. Bot. 41 (2), 609-614	12	2009
23.	Effect of dicyandiamide on microbial activity in the rhizosphere and bulk soils under cotton. Ali, R., Iqbal, J., Robab, E.U., Mahmood Tariq Pak. J. Bot. 41 (3), 1401-1409	1	2009
24.	Virus indexation of in vitro regenerated sugarcane plants. J Naz, S., Siddiqui, F.A., Ali, A. and Iqbal Pak. J. Bot. 41 (4), 1931-1939	3	2009
25.	Association of a distinct Begomovirus and a Betasatellite with leaf curl symptoms in <i>Pedilanthus tithymaloides</i> . RW Tahir, M. Haider, M.S., Iqbal, J. and Briddon J. Phytopathology, 1111, 1434-1439	10*	2009
26.	Isolation, characterization and effect of fluorescent pseudomonads on micropropagated sugarcane. J Mehnaz, S., Weselowski, B., Aftab, F. Zahid, S., Lazarovits, G, Iqbal Can. J. Microbiol. 55, 1007-1011	17	2009
27.	An efficient protocol for in vitro propagation of carnation ( <i>Dianthus caryophyllus</i> ). J Ali, A., Afrasiab, H., Naz, S., Rauf, M. and Iqbal Pak. J. Bot. 40 (1), 111-121	33	2008
28.	Rapid clonal multiplication of sugarcane ( <i>Saccharum officinarum</i> ) through callogenesis and organogenesis. J Ali, A., Naz, S., Siddiqui, F.A. and Iqbal Pak. J. Bot. 40 (1), 123-138	21	2008

Title	Cited by	Year
29. An efficient protocol for large scale production of sugarcane through micropropagation. J Ali, A., Naz, S., Siddiqui, F.A. and Iqbal Pak. J. Bot. 40 (1), 139-149	36	2008
30. Somatic embryogenesis from immature cotyledons and leaf calli of chickpea ( <i>Cicer arietinum</i> L.). J Naz, S., Ali, A., Siddiqui, F.A. and Iqbal Pak. J. Bot. 40 (2), 523-531	12*	2008
31. Effect of 3,5-dimethylphyrazole and nitrapyrin on nitrification under high soil temperature. T Ali, R., Iqbal, J., Tahir, G.R. and Mahmood Pak. J. Bot. 40 (3), 1053-1062	20	2008
32. Estimation of fixed oils from various explants and invitro callus cultures of jojoba ( <i>Simmondisa chinensis</i> ) J Aftab, F., Akram, S. and Iqbal Pak. J. Bot. 40 (4), 1467-1471	5	2008
33. DNA based genetic variation for red rot resistance is sugarcane. YB Alvi, A.K., Iqbal, J., Shah, A.H. and Pan Pak. J. Bot. 40 (4), 1419-1425	16	2008
34. Phenolic content in vitro cultures of chickpea ( <i>Cicer arietinum</i> L.) during callogenesis and organogenesis. J Naz, S., Ali, A. and Iqbal Pak. J. Bot. 40 (6), 2525-2539	16	2008
35. Biosorption characteristics of unicellular green alga <i>Chlorella sorokiniana</i> immobilized in loofa sponge for removal of Cv (III). J Nasreen, A., Iqbal, M., Iqbal, Z.S. and Iqbal Journal of Environmental Science 20, 231-239		2008
36. Nitrous oxide emission from an irrigated cotton field under semiarid subtropical conditions. J Mahmood, T., Ali, R. and Iqbal Bio. Fertil. Soils 44, 773-781	18	2008

	Title	Cited by	Year
37.	Effect of different explants and media composition for efficient somatic embryogenesis in sugarcane ( <i>Saccharum officinarum</i> ). J Ali, A., Naz, S. and Iqbal Pak. J. Bot. 39 (6), 1961-1977	28	2007
38.	In vitro induced mutation for screening of red rot ( <i>Colletotrichum falcatum</i> ) resistance in sugarcane ( <i>Saccharum officinarum</i> ) J Ali, A., Naz, S., Alam, S.S. and Iqbal Pak. J. Bot. 39 (6), 1979-1994	17	2007
39.	Multiple shoot formation from different explants of chickpea ( <i>Cicer arietinum</i> L.). J Naz, S., Ali, A., Siddique, F.A. and Iqbal Pak. J. Bot. 39 (6), 2067-2073	11	2007
40.	Screening of different accessions of three potential grass species from Cholistan Desert for salt tolerance. J Ashraf, Y.M., Akhtar, K., Hussain, F. and Iqbal Pak. J. Bot., 38 (5), 1589-1597	39	2006
41.	Detection of genetic diversity among sugarcane ( <i>Saccharum</i> sp) genotype using Random Amplified Polymorphic DNA markers MS Afghan,S:Haider, AH Shah, M Rashid,N:Iqbal,J:Tahir,M and Akhtar Sugarcane International 23 (6), 15-19	9*	2005
42.	Effect of low pH on continuous citric acid fermentation by <i>Aspergillus niger</i> J Ali, S., Haq, I.U. and Iqbal Pak. J. Bot., 37 (4), 981-988	4	2005
43.	Optimization of nitrogen for enhanced citric acid productivity by a 2-deoxy-D-glucose resistant culture of <i>Aspergillus niger</i> NGd-280. J Haq, I. U., Ali, S., Qadeer, M.A. and Iqbal Bioresource Technology 96 (5), 645-648		2005



	Title	Cited by	Year
44.	<p>Pearl millat, a source of alpha amylase production by <i>Bacillus lichniformis</i>.  J Ikram-ul Haq, Ashraf, H., Qadeer, M.A. and Iqbal  Bioresorce Technol. 96 (10), 1201-1204</p>		2005
45.	<p>Citric acid production by selected mutants of <i>Aspergillus niger</i> from cane molasses.  S Haq I.U, Ali, J Qadeer M.A and Iqbal  Bioresource Technol. 93 (2), 125-130</p>	67*	2004
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(DR. JAVED IQBAL)  
Emeritus Professor  
Director  
School of Biological Sciences,  
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**2003**

1. Meksem, K., Ishihara, H., Koo, H., Shultz, J., Ali, S., Iqbal, J., Town, C.D., Lightfoot, D.A. (2003). *Fusarium solani* f. sp. Glycines whole genomes shotgun library, *Fusarium solani* f. sp. Glycines genomic survey sequence. Genebank (1,987 sequencers).
2. Ali S. Meksem k, I shihara H., shutz. J. Iqbal, J. Light food DA & Town CS. 2003. End sequencing of BACs from a fingerprint physical map of causative agent of soybean sudden death syndrome, *Fusarium verguliforme* (ex-*Fusarium soani* f. sp. gycines) Genebank CG812652-CG808501 (4,151 sequence).

**2011**

3. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797967**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-1 gene for NBS-LRR resistance protein.
4. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797968**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-2 gene for kinase resistance protein.
5. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797969**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-3 gene for kinase resistance protein.
6. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797970**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-4 gene for NBS-LRR resistance protein.
7. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797971**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-5 gene for NBS-LRR resistance protein.
8. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797972**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-6 gene for NBS-LRR resistance protein.
9. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797973**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-7 gene for NBS-LRR resistance protein.
10. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797974**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-8 gene for NBS-LRR resistance protein.
11. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797975**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-9 gene for NBS-LRR resistance protein.
12. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797976**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-10 gene for NBS-LRR resistance protein.
13. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797977**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-11 gene for NBS-LRR resistance protein.
14. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797978**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-12 gene for NBS-LRR resistance protein.
15. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797979**. Isolation of resistant

- gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-13 gene for NBS-LRR resistance protein.
16. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797980**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-14 gene for kinase resistance protein.
  17. Hameed, U., Pan, Y-B., Iqbal, J. 2011. **GenBank; FR797981**. Isolation of resistant gene analogs from red rot resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar HSF-240, partial RGA-15 gene for kinase resistance protein.
  18. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773982**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-1 gene for kinase resistance protein.
  19. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773983**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-2 gene for kinase resistance protein.
  20. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773984**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-3 gene for NBS-LRR resistance protein.
  21. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773985**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-4 gene for NBS-LRR resistance protein.
  22. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773986**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-5 gene for NBS-LRR resistance protein.
  23. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773987**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-6 gene for NBS-LRR resistance protein.
  24. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773988**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-7 gene for NBS-LRR resistance protein.
  25. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773989**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-8 gene for NBS-LRR resistance protein.
  26. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773990**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-9 gene for NBS-LRR resistance protein.
  27. Hameed, U., Pan, Y-B., Grisham, M.P., Iqbal, J. 2011. **GenBank; FR773991**. Isolation of resistant gene analogs from RSD resistant and susceptible sugarcane clones; *Saccharum* hybrid cultivar LCP 85-384, partial RGA-10 gene for NBS-LRR resistance protein.
  28. Tayyab, M., Rasool, N., Jalal, A., Rashid, N. 2011. **AB306519**. *Geobacillus* sp. sbs4s gene for 16S rRNA gi|161408106|dbj|AB306519.1| [161408106].

## 2012

29. Nadeem, M.S., Rashid, N. Iqbal, M., Akhtar, M. 2012. **AB437282**. *Bubalus bubalis* ast1 mRNA for cytosolic aspartate aminotransferase, complete cds gi|219567007|dbj|AB437282.1|[219567007].

## 2013

30. Alvi, A.K., and Iqbal, J. 2013. **KC571250**. *Saccharum* hybrid cultivar HSF-240 phenylalanine ammonia-lyase (PAL) mRNA, molecular and biochemical characterization of red rot resistant and susceptible genotypes of sugarcane (*Saccharum* spp. hybrids).
31. Alvi, A.K., and Iqbal, J. 2013. **KC571251**. *Saccharum* hybrid cultivar Co-1148 phenylalanine ammonia-lyase (PAL) mRNA, molecular and biochemical characterization of red rot resistant and susceptible genotypes of sugarcane (*Saccharum* spp. hybrids).
32. Muhammad, K., Pan, Y-B., Ahmad, H., Riaz, H., Iqbal, J. 2013. **AB836666**. *Saccharum* hybrid cultivar DNA, resistance gene analogues RGA-2, cultivar: NSG-311.
33. Muhammad, K., Pan, Y-B., Ahmad, H., Riaz, H., Iqbal, J. 2013. **AB836667**. *Saccharum* hybrid cultivar DNA, resistance gene analogues RGA-3, cultivar: NSG-311.
34. Muhammad, S., Pan, Y-B., Ahmad, H., Riaz, H., Iqbal, J. 2013. **AB836668**. *Saccharum* hybrid cultivar DNA, resistance gene analogues RGA-4, cultivar: NSG-311.



HEC APPROVED PH.D. SUPERVISOR IN BIOLOGICAL SCIENCES

PH.D. PROGRAMMES

A) PERSONAL LAB:

a) Ph.D. Awarded

1. Molecular and biochemical differentiation between red rot resistant and susceptible genotypes of sugarcane (*Saccharum* spp.) hybrids-2013. **Ambreen Khadija Alvi.**
2. Molecular mapping of quantitative trait loci (QTL) for salt tolerance in indica rice using microsatellite markers – 2013. **Md. Shah Kamal Khan.**
3. Sugarcane transformation, using crystal insecticidal gene(s) of *Bacillus thuringiensis* and its molecular characterization (2012) **Hafiz Muhammad Sohail Akram.**
4. Molecular characterization of resistant and susceptible sugarcane clones to the red rot and ratoon stunting disease (2012) **Usman Hameed.**
5. Identification and characterization of rust resistance gene(s) in commercial cultivars of sugarcane (*Saccharum hybrids* L.) 2012 **Khushi Muhammad.**
6. Studies on the denitrification loss from irrigated cotton fields under semiarid subtropical conditions (2009) **Rehmat Ali.**
7. Optimization of cultural conditions on the biosynthesis of xylanase by locally isolated *Aspergillus niger* (2008) **Waseem Ahmad Butt.**
8. Biosorption of heavy metals (Cu, Ni & Pb) immobilized microalgae (2008) **Nasreen Akhtar.**
9. Phenolics in *in vitro* cultures of *Mangifera indica* variety chaunsa during Callogenesis and embryogenesis (2007) **Farah Khan.**
10. Drought tolerance studies on wheat as affected by different growth substances (2007) **Hafiz Muhammad Akram.**
11. Transgenic expression and analysis of salt tolerance/cane borer resistance in sugarcane (*Saccharum officinarum*) (2007) **Muhammad Safdar.**
12. Biochemical and molecular markers of somaclonal variants and induced mutants of potato (*Solanum tuberosum* L) (2006) **Humaira Farooqi.**

13. Large scale production of sugarcane through micropropagation and *in vitro* selection of mutants resistant to red rot disease in sugarcane using induced mutations (2006) **Aamir Ali**.
14. Physiological studies in some halophytic desert grasses of cholistan (2006) **Kalsoom Akhtar**.
15. Development of cotton leaf curl disease (CLCud) resistance in transgenic tobacco (2006) **Muhammad Siddique**.
16. Biological Control of different soil borne fungal disease of Potato (*Solanum tuberosum L.*) raised through tissue culture by using vesicular arbuscular mycorrhiza and other antagonistic fungi (2005) **Masood Khan Lodhi**.
17. Biochemical and molecular investigation of somaclonal variants in sugarcane (*Saccharum officinarum* cv. Col.54) (2005) **Rana Abrar Hussain**.
18. Studies on the submerged fermentation of citric acid by *Aspergillus niger* in stirred fermenter (2004) **Sikandar Ali**.
19. Studies on the biosynthesis of alpha amylase by a mutant strain of *Bacillus* species (2004) **Muhammad Hamad Ashraf**.
20. Studies on the microbial production of penicillin amidase for the conversion of penicillin G to 6-amino penicillin acid (6-Apa) (2004) **Arifa Qadeer**.
21. Essential oils and lipids of citrus species produced through Tissue Culture Technique. (2002) **Shahid Mahmood**.
22. Mechanism of salt tolerance in microorganisms exposed to saline stress. (1999) **Rashid Ali**.
23. Somaclonal variation in lentil (*Lens culinaris* Medik). (1997) **Nafees Altaf**.
24. Clonal propagation of pistachio through tissue culture. (1997) **Athar Hussain**.
25. *In vitro* studies on histological and biochemical changes associated with differentiation, callogenesis and organogenesis in soybean (*Glycine max*). (1997) **Kunwar Shaib**.
26. Protoplast culture, regeneration and somatic hybridization in *Saccharum officinarum* L. (1997) **Faheen Aftab**.
27. Phenolics in *in vitro* cultures of chickpea (*Cicer arietinum* cv. CM 70) during Callogenesis and organogenesis. (1996) **Shagufta Naz**.
28. Studies on the production of raw starch hydrolysing enzymes by various microbes and their use in ethanol fermentation. (1994) **Muhammad Aurangzeb**.
29. A study of the elimination of sugarcane mosaic virus from *Saccharum officinarum* by means of *in vitro* meristem and callus cultures and some biochemical aspects of regenerated healthy and infected plants. (1992) **Fayyaz Ahmad Siddiqui**.

30. Biosynthesis of Galactosidases from locally isolated micro-organisms (1987) **Nasreen Zaidi.**

**Ph.D. Thesis Submitted for Award:**

**b) Work In Progress In Personal Lab:**

1. Molecular characterization of resistant and susceptible sugarcane clones to smut disease.
2. Productivity enhancement by development of transgenic virus resistant sugarcane through expression of artificial micro RNA (miRNA) carrying sugarcane mosaic virus derived sequences.

**B) M.PHIL AWARDED**

1. *In vitro* microtuberisation of three elite cultivars (Cardinal, Diamant and Red Norland) of potato (*Solanum tuberosum* L.) (2002) **Aafia Aslam.**
2. Transcription profiling and bioinformatic analysis of *Saccharum officinarum* (hybrid) aquaforim gene from sugarcane cultivars in response to PEG-8000 treatment. 2015. RIDA FAIZI.
3. Vector construction having Cry1Ac gene targeting tobacco chloroplast for contained insect resistance 2015. AMNA SHAKARULLAH.

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## D) M.Sc GUIDANCE

S.#	Name of Student	Title of Thesis	Academic Session
1.	Shaukat Mahmood	Morpho-physiological studies of <i>Capsicum annuum</i> L. seedlings grown from gibberellic acid treated irradiated seeds.	1973
2.	Muhammad Aslam	Morpho-physiological studies of <i>Capsicum annuum</i> L. seedling grown from irradiated seeds.	1973
3.	Saima Aslam	Growth and Protein Metabolism of rice seedlings ( <i>Oryza sativa</i> L) grown from irradiated seeds.	1973
4.	Kosar Fatima	Effects of hormones on the early growth of rice seedlings (Basmati) grown from irradiated seeds.	1973
5.	Sarwat Fatima	Effect of acute gamma irradiation on nucleic acids (RNA + DNA) and the total nitrogen content in different varieties of <i>Triticum vulgare</i> L.	1974
6.	Samina Noreen	Effect of post-irradiation seed treatment of gibberellic and indole acetic acid on germination and early growth of <i>Helianthus annuus</i> L.	1978
7.	Manzoor Ahmad Jan	Effects of pre and post-irradiation treatment of Ascorbic acid on germination and early growth of wheat, rice and maize.	1979
8.	Niaz Ahmad	Effects of pre and post-irradiation treatment of sodium azide on germination and early growth of wheat, rice and maize.	1979
9.	Naila Noreen	Effect of post-irradiation treatment of indole acetic acid and Zinc on germination and early growth of <i>Brassica compestris</i> L.	1983
10.	Mah-e-Naz	Effect of post-irradiation treatment of Gibberellic acid and Copper on germination and early growth of <i>Triticum vulgare</i> L.	1983
11.	Kheed Gul	Effect of Post-irradiation treatment of Gibberellic acid and Zinc on germination and early growth of <i>Triticum vulgare</i> L.	1983
12.	Asif Mahmood	Effect of Post-irradiation treatment of Indole acetic acid and Managenese on germination and early growth of <i>Triticum vulgare</i> L.	1983
13.	Humera Farooqi	Effects of Post-irradiation IAA treatment of seeds on distribution of Nucleic acid content during early growth of <i>Raphanus sativus</i> L.	1984

14.	Amtul Wadood	Effect of Gamma-irradiation of seeds on soluble and total proteins during early growth of <i>Oryza sativa</i> L. (Cv. K.S. 282).	1984
15.	Shehla Shah	Effect of harvesting intervals and precipitation techniques on the quality of protein concentrates in <i>Trifolium resupinatum</i> .	1984
16.	Afrasiab Yousaf Zai	Effect of gamma irradiation of seeds on distribution of Nucleic acid content during early growth of <i>Oryza sativa</i> L. (Cv. IRRI-6).	1984
17.	Fayyaz Ahmad Siddiqui	Trace elements (Zn, Cu, Sn, Pb) in commercially preserved fruit and fruit products.	1984
18.	Sadia Akram	Effect of Sodium Chloride salinity and kinetin on germination and early growth of wheat ( <i>Triticum aestivum</i> L.) and Maize ( <i>Zea mays</i> L.).	1985
19.	Naureen Rafique	Toxic action of Barium on early growth, Protein and Phosphatases content in maize ( <i>Zea mays</i> L. Cv. Akbar).	1985
20.	Sahar Mushtaq	Toxic action of Lead on early growth, Protein and Phosphatases in Maize ( <i>Zea mays</i> L. Cv. Akbar).	1985
21.	Mohsin Ali	Effect of Sodium Azide treatment of seeds on early growth and chlorophyll contents of rice	1985
22.	Syed Aftab Haider Zaidi	A comparison of Nitrate and Nitrite content in some varieties of wheat grown in Punjab.	1985
23.	Darakhshanda Khurshid	Effect of Barium chloride on early growth, chlorophyll and total nitrogen content of <i>Barassica compestris</i> .	1986
24.	Farkhanda Musarrat	Toxic effect of Lead Nitrate on early growth, peroxidases and protein contents in wheat seedlings ( <i>Triticum aestivum</i> L. Cv. FSA-83).	1986
25.	Fauzia Ijaz	Toxic action of Barium on early growth of Maize seedling and their reversal by GA <sub>3</sub> treatment.	1986
26.	Zaheer Babar	Toxic effects of Lead Nitrate on early growth, Nucleic acids and Protein contents in maize seedling ( <i>Zea mays</i> L. Cv. Sultan).	1986
27.	Shakeel Ahmad Khan	Effect of Gamma irradiation of seeds on germination growth and yield of two cultivars of wheat ( <i>Triticum aestivum</i> L. Cv. FSA-83).	1986
28.	Farida Majid	Soluble protein contents and its electrophoretic pattern in <i>in vitro</i> propagated calli of chickpea ( <i>Cicer arietinum</i> L.).	1987

29.	Farah Saeed	DNA and RNA content of <i>in vitro</i> propagated calli of chickpea ( <i>Cicer arietinum</i> L. CM 72).	1987
30.	Nadira Butt	Changes in peroxidase content and its isozymic forms in <i>in vitro</i> calli of chickpea ( <i>Cicer arietinum</i> L. Cv. CM 72).	1987
31.	Tayyaba Mubarika	Toxic effect of Lead on germination, early seedling growth, soluble Protein and Peroxidase content in wheat ( <i>Triticum aestivum</i> L. Cv. Pak. 81).	1987
32.	Shagufta Naz	Toxic effect of Barium on germination, early seedling growth soluble Protein and Peroxidase content in wheat ( <i>Triticum aestivum</i> L. Cv. Pak. 81).	1987
33.	Sarwat Nazir	Phenylalanine Ammonia lyase (PAL) content <i>in vitro</i> propagated calli of chickpea ( <i>Cicer arietinum</i> L. CM 72).	1988
34.	Munazza Haroon	Acid phosphatases content of <i>in vitro</i> propagated calli of chickpea ( <i>Cicer arietinum</i> L. CM 72).	1988
35.	Kh. Asif Majeed	Effect of Mercury on germination, early seedling growth and soluble protein content in wheat ( <i>Triticum aestivum</i> L. Cv. Pak. 81)	1988
36.	Muhammad Tahawi	Effect of Cadmium on germination, early seedling growth and soluble protein content in wheat ( <i>Triticum aestivum</i> L. Cv. Pak. 81).	1988
37.	Zubeda Chaudhry	Callus formation and differentiation from various explants of <i>Citrus reticulata</i> L. Cv. BLANCO (Kinnow Mandarin).	1989
38.	Faheem Aftab	Polyphenol oxidase content of <i>in vitro</i> propagated calli of chickpea ( <i>Cicer arietinum</i> L.)	1989
39.	Kafiat ullah	Absorption and translocation of Mercury in young wheat seedling and its effect on growth.	1989
40.	Abrar Hussain	Cadmium uptake and distribution in young pea seedlings and its effect on growth.	1989
41.	Fouzia Mussarat	Effects of Zinc on early growth of seedling and its uptake by shoot and root in wheat ( <i>Triticum aestivum</i> L. Cv. FD. 83).	1989
42.	Afshan Babar	Changes in proteins, peroxidases and oil content in calli of soybean ( <i>Glycine max</i> Cv. William).	1990
43.	Aqsa Nazir	Changes in protein content during <i>in vitro</i> root and shoot regeneration from callus cultures of sugarcane ( <i>Saccharum officinarum</i> L.).	1990
44.	Mamoona Din	Changes in peroxidase content and isozymes during root and shoot regeneration from callus cultures of sugarcane ( <i>Saccharum officinarum</i> L.)	1990
45.	Naila Azam	Changes in protein content during <i>in vitro</i> callogenesis and embryogenesis in citrus ( <i>Citrus reticulata</i> Cv. Kinnow).	1990

46.	Iram Ehsan	Changes in peroxidase content and isozymes during <i>in vitro</i> callogenesis and embryogenesis in citrus ( <i>Citrus reticulata</i> Cv. Kinnow).	1990
47.	Iram Latif	<i>In vitro</i> regeneration of strawberry ( <i>Fragaria</i> Sp.).	1991
48.	Fauzia Farrukh	<i>In vitro</i> shoot and root formation from nodal explants of soybean ( <i>Glycine max.</i> ).	1991
49.	Mannaza Ijaz	Effect of Zinc and Cadmium on germination, early growth, Protein and acid Phosphatase content in maize ( <i>Zea mays</i> Cv. Sultan).	1991
50.	Zahid Hussain	Effect of Nickle chloride on germination and early growth of <i>Gossypium hirsutum</i> L. Cv. FH 87.	1992
51.	Mussarat Nasim	Total phenolics in <i>in vitro</i> callus culture of chickpea ( <i>Cicer arietinum</i> Cv. Pb-1).	1992
52.	Sumaira Naz	Total Phenolics in <i>in vitro</i> callus cultures of chickpea ( <i>Cicer arietinum</i> Cv. 6153).	1992
53.	Sadia Ambreen	Effect of Nickle chloride on early growth of <i>Zea mays</i> Cv. Sultan.	1992
54.	Shazia Ambreen	<i>In vitro</i> Plant regeneration via somatic embryogenesis in Peanut ( <i>Arachis hypogea</i> L. Cv. Bari 89)	1993
55.	Raheela Ayub	<i>In vitro</i> micropropagation, hardening and acclimatization of Potato ( <i>Solanum tuberosum</i> L. Cv. Cardinal & Diamant).	1993
56.	Farzana Malik	<i>In vitro</i> micropropagation, hardening and acclimatization of Potato ( <i>Solanum tuberosum</i> L. Cvs. Desiree & Patrones).	1993
57.	Tasneem Kausar	Changes in proteins, acid phosphatases, esterases during callogenesis in soybean ( <i>Glycine max</i> L.) Cv. W.1.	1993
58.	Khushnuda Gulfam	Effect of Zinc and Lead on germination, early seedling growth, protein and acid phosphatase content in maize ( <i>Zea mays</i> L. Cv. Sultan).	1993
59.	Samina Ambreen	<i>In vitro</i> microtuber induction in <i>Solanum tuberosum</i> L. Cv. Desiree.	1994
60.	Fauzia Anwar	<i>In vitro</i> microtuber induction in <i>Solanum tuberosum</i> L. Cv. Patrones.	1994
61.	Tayyaba Noreen	Callogenesis and organogenesis in <i>Solanum tuberosum</i> L. Cv. Cardinal.	1994
62.	Barza Saeed	Effect of Nickle on early growth and chlorophyll pigments of young maize.	1994
63.	Ghazala Nasim	The influence of Nickle on early growth and esterases in maize ( <i>Zea mays</i> L. Sultan).	1994
64.	Muhammad Sarfraz Kiyani	Callus growth and regeneration potential of sugarcane ( <i>Saccharum officinarum</i> L.) cv. Col. 54 under Salt stress.	1995
65.	Asma Ashraf	Micropropagation of <i>Eucalyptus camaldulensis</i> .	1995

66.	Tehseen Zehra	<i>In vitro</i> callogenesis and organogenesis of <i>Arachis hypogae</i> Var. Bari. 89.	1995
67.	Samiya Zahur	<i>In vitro</i> microtuber induction in <i>Solanum tuberosum</i> L. Cvs. Cardinal, Desiree, Patronas, Parus and biochemical analysis of enzyme peroxidase during different ontogenetic stages of microtuber formation.	1995
68.	Fauzia Zahra	<i>In vitro</i> organogenesis of <i>Ipomoea batatas</i> (L.) Lam Cv. Portio Rico.	1995
69.	Shehla Noreen	Some biochemical markers of sex determination (Phenolics and related enzymes) in <i>Carica papaya</i> .	1996
70.	Aneela Maqbool	Some biochemical markers of sex determination (Phenolics and related enzymes) in <i>Simmondsia chinensis</i> (JOJOBA).	1996
71.	Ayesha Sharif	Some biochemical markers of sex determination (Acid and basic phosphatases, esterases) in <i>Carica papaya</i> .	1996
72.	Muhammad Siddique	Micropropagation of <i>Azadirachta indica</i>	1996
73.	Tamanna Muqaddas	Effects of Nickle and Copper toxicity on early growth, soluble protein and peroxidases content of wheat ( <i>Triticum aestivum</i> cv. Inqalab 91) seedlings.	1996
74.	Shazia Ambreen	Plant regeneration via somatic embryogenesis in <i>Arachis hypogea</i> L cv. Bari-89	1997
75.	Juveria Omer	Comparison of soluble proteins and isozymes of peroxidase of male and female plants of Jojoba ( <i>Simmondsia chinensis</i> (Link) Schneider.	1997
76.	Rehana Kausar	Quantitative and qualitative changes in enzymes esterase and Acid phosphatase during <i>in vitro</i> ontogenetic development of microtubers in <i>Solanum tuberosum</i> L. cv. Cardinal.	1997
77.	Zeb Siddique	Biochemical analysis of enzymes peroxidase, esterase and acid phosphatase in different cultivars of sugarcane ( <i>Saccharum officinarum</i> L.)	1997



78.	Fouzia Zahra	In vitro organogenesis in <i>Impomea batatas</i> (Linn.) Lens	1997
79.	Sabahat Noor	Biochemical markers of varietal differentiation in six cultivars of Wheat ( <i>Triticum aestivum</i> )	1998
80.	Neelma Munir	Changes in soluble protein - peroxidase and Acid phosphatase during somatic embryogenesis in sugarcane ( <i>Saccharum officinarum</i> L. Col. 54)	1998
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82.	Saiqa Amber	Micropropagation of <i>Prunus persica</i>	1998
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85.	Farhat Jabeen	<i>In vitro</i> regeneration of jojoba ( <i>Simmondsia chinensis</i> )	1999
86.	Afshan Khalid	Enzymes (peroxidase, esterase & acid phosphatase) as biochemical markers of varietal differentiation in sugarcane ( <i>Saccharum officinarum</i> L.) Cvs: BF 162, CP 43/33, Col-54	1999
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92.	Shama Naz	<i>In vitro</i> callogenesis and organogenesis from cotyledonary leaf explants of <i>Azadirachta indica</i> A. Juss (var. Neem).	2000
93.	Ambreen Idrees	<i>In vitro</i> somatic embryogenesis in <i>Azadirachta indica</i> A. Juss (var. Neem).	2000

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99.	Adnan Javed	Low cost media options for the micro-propagation of sugarcane.	2006
100.	Asia Siddique	Collogenesis and regeneration response of <i>Solanum tuberosum</i> L. cv. Kurode.	2006

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