



## **CURRICULUM VITAE (C.V.)**

### **MR. EHSAN ULLAH KHAN**

#### **PERSONAL DETAILS:**

**Father's Name:** Rustam Khan

**Date of Birth:** April 12, 1971.

**Marital Status:** Married

**C. N. I. C. No:** 11201-0356481-1

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**Nationality:** Pakistani

**Present position:** Senior Scientist,

**Nuclear Institute for Agriculture & Biology (NIAB),**

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**Current Address:** PhD Scholar,

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### **ACADEMIC PROFILE:**

<b>S. No.</b>	<b>Certificate / Degree</b>	<b>Year of Passing</b>	<b>Major Group/ Subjects</b>	<b>Marks (%)</b>	<b>Board / University</b>
1	SSC	1987	Science	68.71	Board of Inter & Secondary Education, Peshawar, Pakistan.
2	HSSC	1990	Pre-Eng.	64.19	Federal Board of Inter & Secondary Education Islamabad, Pakistan.
3	B.Sc. (Hons.) Agriculture*	1993	Horticulture	73.22	Gomal University, D.I. Khan (Pakistan).

4	M.Sc. (Hons.) Agriculture**	1996	Horticulture	86.20	Gomal University, D.I. Khan (Pakistan).
5	B. Ed.	1997	Science	62.20	Gomal University, D.I. Khan (Pakistan).
6	PhD	2007- Todate	Citrus Genetic Engineering	-	Huazhong Agric. Univ. Wuhan (P.R. China).

\* Four Years Degree

\*\* Two Years Degree

**LIST OF AWARDS AND SCHOLARSHIPS AWARDED FOR STUDY/RESEARCH:**

1. **1st Position in Department of Horticulture, Gomal University, D.I. Khan, N. W. F. P. Pakistan (MSc. Hons. Agriculture, Session: 1993-96).**
2. **2nd Position in Faculty of Agriculture, Gomal University, D.I. Khan, N. W. F. P., Pakistan (MSc. Hons. Agriculture, Session: 1993-96).**
3. **Awarded Merit Scholarships throughout the academic career**
4. **Obtained First class/First division throughout the academic career**
5. **Awarded PhD scholarship by Islamic Development Bank (IDB), Jeddah, Saudi Arabia under IDB's "Merit Scholarship Programme for High Technology" (2007-2010)**
6. **Declared "Excellent Student in Studies in 2009" and awarded "Wencai Zhang Scholarship" by Huazhong Agricultural University, Wuhan, P. R. China (November**

11, 2009).

**EMPLOYMENT RECORD:**

<b>Sr. No.</b>	<b>Employer's Name</b>	<b>Address of Organization</b>	<b>Pay Scale</b>	<b>Designation</b>	<b>Period of Service</b>
1.	Pakistan Atomic Energy Commission (PAEC), Islamabad.	NIAB, Faisalabad Pakistan.	-	Trainee Research Fellow	03.02.1998 to 07.05.2000
2.	Pakistan Atomic Energy Commission, Islamabad.	NIAB, Faisalabad, Pakistan.	P.A.E.C. (Group-VIII)	Scientific Officer	08.05.2000 to 30.11.2002
3.	Pakistan Atomic Energy Commission, Islamabad.	NIAB, Faisalabad, Pakistan.	P.A.E.C. (Group-IX)	Senior Scientist	1.12.2002 to date

**TRAININGS AND COURSES:**

**1998** Attended and successfully completed a practical training course on “Safety Measures in the Use of Radiation in Agriculture & Biology”, organized by PAEC at NIAB, Faisalabad, Pakistan (September 14 - 18).

**1998** Attended and successfully completed a practical training course on “Nuclear and Other Advance Techniques in Agriculture and Biological Research” organized by PAEC at NIAB, Faisalabad, Pakistan (November 16 – 27).

**2006** Attended and successfully completed a practical training course on “Civil Defence in Nuclear, Biological & Chemical Warfare organized” by Civil Defence Academy, Lahore, Pakistan (September, 25 to October, 14).

### **WORK EXPERIENCE:**

#### **A- Work Experience from 1998 – May 2007 in Pakistan:**

- **Currently working as a Senior Scientist (Now on study leave) in Nuclear Institute for Agriculture & Biology (NIAB), Faisalabad, Pakistan**
- ***In vitro* techniques: Optimized *in vitro* protocols and developed virus free citrus plants (Kinnow mandarin), most important citrus cultivar in Pakistan) using various explants.**
- **Sprout grafting: Used this technique for rapid and mass propagation of elite scions of Kinnow mandarin by grafting onto Rough lemon rootstocks.**
- **In-vitro Micro-grafting: Used this technique for rapid and mass propagation of virus free shoots of kinnow mandarin developed *in vitro* by grafting onto rootstocks that have desirable traits like resistance to soil-borne pathogens and for survival of shoots difficult to root**
- **Induced Mutations: Developed seedless kinnow mandarin plants via application of various gamma irradiation doses of scions cum budding/grafting techniques (Currently plants are supervised and disseminating by colleagues in the lab).**

- **Spontaneous Mutations:** Developed seedless kinnow mandarin plants through selection of spontaneous mutations cum sprout- grafting technique (Currently plants are supervised and disseminating by my colleagues in the lab).

#### **B- Work Experience from June 2007- Present in P. R. China:**

- Currently working as PhD Scholar under PhD Merit Scholarship Programme for High Technology of Islamic Development Bank, Saudi Arabia in National Key Laboratory of Crop Genetic Improvement, National Center of Crop Molecular Breeding, Huazhong Agricultural University, Wuhan, China (Supervisor: Professor Dr. Ji-Hong, Liu).
- Reported for the first time an efficient protocol for regeneration and *Agrobacterium* - mediated transformation of citrus plants via direct organogenesis from leaf discs explants
- Developed successfully transgenic citrus plants overexpressing stress tolerant genes.
- Developed various reproducible protocols for *Agrobacterium* - mediated transformation of different citrus species while using GFP as reporter gene
- Conducted experiments on the role of exogenous polyamines including D- Arginine, Putrescine, and Spermidine in citrus somatic embryogenesis and organogenesis
- Gained experience in various techniques required in molecular characterization of transgenic plants.

#### **EXPERTISE IN RESEARCH TECHNIQUES AND SKILLS**

Got expertise in following research techniques and skills:-

1. **Tissue culture techniques: Media preparation, tissue sterilization, tissue cultures maintenance, and regeneration techniques for citrus using various explants including nucellus, epicotyls, hypocotyls, protoplast, embryos and multiple shoot meristems etc.**
2. **DNA extraction from various parts of plants and calli using different protocols including "mini and maxi prep"**
3. **PCR (Polymerase Chain Reactions), RAPD PCR, (Random Amplified Polymorphic DNA).**
4. **Starch Gel Electrophoresis for Protein Electrophoresis.**
5. **DNA cloning, DNA fingerprinting, DNA sequencing.**
6. **Design Primers and Probes for Molecular Biology Purpose.**
7. ***Agrobacterium*-mediated transformation**
8. **Molecular Characterization of Transgenic Plants**
9. **Southern Blot Analysis**
10. **Northern Blot Analysis**
11. **Western Blot Analysis of transgenic plants**
12. **Cell suspension culture**
13. **Protoplast isolation and somatic hybridization**
14. **Various staining techniques of Protein Gels i.e. silver staining and for Agarose gels Ethidium bromide.**
15. **Somatic embryogenesis is routinely being used in the lab as an alternative method of propagation.**
16. **Shoot-tip grafting**

- 17. In-vitro micro-grafting**
- 18. A-sexual grafting techniques**
- 19. Gamma irradiation technique for induction of mutations**

### **COMPUTER EXPERIENCE:**

- 1. Gained experience in Microsoft Office (MS Word, MS Excel, and MS PowerPoint).**
- 2. Experienced in using Word perfect.**
- 3. Experienced in using statistic software (SAS, STATISTICA-Version 5.5, and Stats Soft).**
- 4. Experienced in using Photoshop CS.**
- 5. Gained experience in designing screens for multimedia presentations.**

### **MEMBERSHIPS OF PROFESSIONAL SOCIETIES & EDITORIAL BOARD:**

- 1. Member of Horticulture Society of Pakistan**
- 2. Member of International Society of Citriculture**
- 3. Member of Botanical Society of Pakistan**
- 4. Member of International Society for Horticulture Sciences (ISHS), Belgium**
- 5. Member of Online Science and Technology Forum of Science Development Network of IDB (SDN) (<http://sciencedev.net/forums/>)**
- 6. Member of Editorial Board of the African Journal of Plant Science**



**7. Life time member of Khwarzimid Science Society of Pakistan**

**8. Member of American Society for Quality**

## **MEMBERSHIPS OF PROFESSIONAL ASSOCIATIONS AND GROUPS**

### **Member of LinkedIn Groups:**

**(a) International Agricultural Association (IAA)**

**(b) Horticulture**

**(c) The Plant Kingdom**

**(d) Biotech and Pharma Network Professionals**

**(e) Agriculture**

**(f) Commission Fruits and Vegetables and Health**

**(g) Plant Breeders and Agents Group**

**(h) Graduates in Horticulture and Job Aspirants**

**(i) Horticulture Interests**

**(j) OFA – An association of Horticulture Professional**

**(k) Bio Tech Regulatory and Quality Professionals**

**(l) Plant Breeders and Agent Groups**

## **LIST OF PUBLICATIONS:**

1. Altaf, N., **E. K. Marwat**, S. A. Khalil and I. A. Bhatti (2000) Effect of gamma radiation on nucellar embryogenesis of various citrus cultivars *Pak. J. Biol. Sci.*, 3 (5): 887- 889.
2. Altaf, N., **E. K. Marwat**, S. A. Khalil and I. A. Bhatti (2000) Callus responses of explants from citrus cultivars *J. Agric. Res.*, 38 (1): 53-60.
3. Altaf, N., S. A. Khalil, **E. K. Marwat** and I. A. Bhatti (2000) Effect of radiation on nucellar embryogenesis in sweet orange cultivars *Pak. J. Biol. Sci.*, 3 (10): 1612-1614.
4. Iqbal, M. M., N. Altaf, **E. K. Marwat**, I. A. Hafiz and I. A. Bhatti (2001) A marker for seedlessness in Kinnow mandarin *Pak. J. Biol. Sci.*, 4 (1): 69.
5. Altaf, N., **E. K. Marwat**, I. A. Bhatti and M. M. Iqbal (2001) Nucellar regeneration and polyembryony of citrus cultivars *Pak. J. Bot.* 33(2): 211-215.
6. Altaf, N., M. M. Iqbal, **E. K. Marwat** and I. A. Bhatti (2001) Effect of gamma radiation on secondary somatic embryogenesis in nucellus culture of citrus cultivars *Pak. J. Bot.* 33 (4): 419- 422.
7. Khattak, G. S. S., M. A. Haq, M. Ashraf, G. R. Tahir, **E. U. K. Marwat** (2001). Detection of epistasis and estimation of additive and dominance components of genetic variation for synchrony in pod maturity in mungbean (*Vigna radiata* L. Wilczek) *Field Crops Res.*, 72: 211- 219

8. **Marwat, E. U. K.**, and A. A. Alizai (2002) Effect of weeding intervals on yield and yield components of chilies (*Capsicum annum L. Indus J. Plant Sci.* 1 (1): 176-179.
9. Altaf, N., M. M. Iqbal, **E. K. Marwat**, A. Gulnaz, G. A. Chaudhary, I. A. Hafiz and M. Ashraf (2002). Towards a seedless cultivar of Kinnow mandarin. 1. Embryogenesis of low seeded/seeded fruits. *J. Agric. Res.* 40 (1): 29-35.
10. Khattak, G. S. S., M. A. Haq, M. Ashraf, P. Srinives, **E. K. Marwat** (2002). Genetic analysis of photoperiod-sensitivity, flowering and maturity response in mungbean (*Vigna radiata L. Wilczek*) *J. I. S. S. A. A. S.*, 7 (2): 31 – 36.
11. Khattak, G. S. S., M.A. Haq, **E. U. K. Marwat**, M. Ashraf and P. Srinives (2002) Heterosis for seed yield and yield components in mungbean (*Vigna radiata L. Wilczek*) *Sci. Asia* 28: 345 – 350.
12. Altaf, N., M. M. Iqbal, A. Gulnaz, **E. U. Khan** (2003). Towards a seedless cultivar of Kinnow mandarin (2) Variation in seed shape and seed size. *Pak. J. Bot.* 35 (1): 79-87.
13. **Khan, E. U.** (2003). Growth and yield response of Chilies (*Capsicum annum (L.)*) to weeding intervals. *Baloch. J. Agric. Sci.*, 4 (1): 37-39.
14. Altaf, N., M. M. Iqbal and **E. U. Khan** (2004) Towards a seedless cultivar of Kinnow mandarin. IV. Natural and induced variability. *Pak. J. Bot.* 36 (1): 93-102.

15. Altaf, N., M. M. Iqbal and E. U. Khan (2004) Development of seedless clones of Kinnow mandarin 1st *Natl. Conf. Agric. Biotech* (Aug. 16 – 18, 2004), Nathiagali (Pakistan.), pp. 94 (Program and Abstracts)
16. Khan, E. U., and N. Altaf (2005) Somatic embryogenesis and regeneration of plants from nucellar tissue of Kinnow mandarin (*Citrus reticulata* Blanco) *Indus J. Plant Sci.* 4 (3): 362-368.
17. Khan, E. U., N. Altaf and M. A. Chaudhary (2006) Modified technique of micrografting for producing sparsely seeded and virus free Kinnow fruit plants. *Indus J. Biol. Sci.* 3 (1): 604-608.
18. Marwat, E. U. K. (2007). *In vitro* plant regeneration in Kinnow. *Life Sci. Intl. J.*, 1(2):153-156.
19. Khan, E.U., A. R., Khan, K. Ziaf (2008) Citriculture Scenario in Pakistan. *XIth Intl. Soc. Citriculture Congress (October 26-30, 2008), Wuhan, China*, pp. 136. (Program and Abstracts).
20. Khan, E. U., X. Z. Fu, J. Wang, Q. J. Fan, X.S. Huang, G. N. Zhang, J. Shi, J. H. Liu (2009). Regeneration and characterization of plants derived from leaf in vitro culture of two Sweet orange (*Citrus sinensis* (L.) Osbeck) cultivars. *Scientia Horticulturae*, 120:70-76.
21. Khan, E. U., and J. H. Liu (2009) Plant biotechnological approaches for the production and commercialization of transgenic crops *J. Biotechnology &*

*Biotechnological Equipment* 23 (3): 1281-1288.

22. **Khan, E. U.**, J. H. Liu, X. Z. Fu, J. Wang, and Q. J. Fan (2009) Optimization of *Agrobacterium*-mediated transformation factors for citrus embryogenic callus using Green Fluorescent Protein (GFP) as a reporter gene. *Plant Genomics in China X*, Chongqing (August 19-21, 2009), pp. 173 (Abstracts)

### **PAPER SUBMITTED**

**Khan, E. U.**, A. R. Khan and K. Ziaf (2008) Citriculture Scenario in Pakistan Proc. Intl. Soc. Citriculture Congress (October 26-30, 2008), Wuhan, China (Paper Accepted)

### **CONFERENCES, CONGRESSES AND SYMPOSIUMS**

2008 Participated in International Symposium on Bio-energy and Biotechnology organized by Huazhong Agricultural University, Wuhan, China (March, 16-20).

2008 Attended first International Symposium on Applied Biotechnology in Horticulture-08 organized by Huazhong Agricultural University, Wuhan, China (April, 16-18).

2008 Participated in 2008–Summer Institute in Plant Biology organized by Huazhong Agricultural University, Wuhan, China, June 9-13.

2008 Participated and presented 2 posters in XI<sup>th</sup> International Society of

**Citriculture Congress organized by the Chinese Society of Citriculture and Huazhong Agricultural University, Wuhan, China (October 26-30).**

**2009 Participated and presented one poster in Plant Genomics in China X, organized by Southwest University, Chongqing, China (August 19-21).**

**2009 Attended Paris-Wuhan Meeting on Plant Functional Genomics, organized by Huazhong Agricultural University, Wuhan, China (Nov 19-21).**

**2009 Participated in Post Graduate Students Annual Research Work Presentations and delivered oral presentation entitled “*Agrobacterium*-mediated transformation of *Citrus sinensis* L. (Osbeck) using leaf regeneration system’ organized by Huazhong Agricultural University, Wuhan, China**

**POSTERS PRESENTED:**

**2008 Citriculture Scenario in Pakistan in the XI<sup>th</sup> International Society of Citriculture Congress, Wuhan, China (October 26-30).**

**2008 Regeneration and characterization of plants derived from leaf in vitro culture of two Sweet orange (*Citrus sinensis* (L.) Osbeck) cultivars in XI<sup>th</sup> International Society of Citriculture Congress, Wuhan, China (October 26-30)**

**2009 Optimization of *Agrobacterium*-mediated transformation factors for citrus embryogenic callus using Green Fluorescent Protein (*GFP*) as a reporter gene in Plant Genomics in China- X, Chongqing, China (August,**

19-21)

**REFERENCES:**

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