



TO MAGNIFICO RETTORE OF UNIVERSITA' DEGLI STUDI DI MILANO
CODE 6545

ID

I the undersigned asks to participate in the public selection, for qualifications and examinations, for the awarding of a type B fellowship at **Dipartimento di _ DEPARTMENT OF FOOD, ENVIRONMENTAL AND NUTRITIONAL SCIENCES**

Scientist incharge: **PROF. CAVALCA LUCIA** _____

[RANA KHALID IQBAL]

CURRICULUM VITAE

PERSONAL INFORMATION

Surname	IQBAL
Name	RANA KHALID

PRESENT OCCUPATION

Appointment	Structure
ASSISTANT PROFESSOR 17-APRIL TO DATE	INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY, BAHAUZZIN ZAKARIYA UNIVERSITY, MULTAN
POSTDOC RESERACHER 17-JAN-2022- 16-APRIL-2023	DEPARTMENT OF BIOLOGY UNIVERSITY OF PADOVA, ITALY
ASSISTANT PROFESSOR 28-AUG-2017 to 05-JAN-2022	INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY, BAHAUZZIN ZAKARIYA UNIVERSITY, MULTAN
LECTURER 18-OCT-2012 TO 31-JAN-2013	INSTITUTE OF MOLECULAR BIOLOGY AND BIOTECHNOLOGY, BAHAUZZIN ZAKARIYA UNIVERSITY, MULTAN



EDUCATION AND TRAINING

Degree	Course of studies	University	year of achievement of the degree
Degree			
Specialization			
PhD	ASPECTS OF MOLECULAR AND CELLULAR BIOLOGY/ PLANT SCIENCE	UNIVERSITY OF STRASBOURG, FRANCE	2017
Master	M.PHIL IN BIOTECHNOLOGY	INSTITUTE OF BIOTECHNOLOGY, B.Z. U, MULTAN	2011
Degree of medical specialization			
Degree of European specialization			
Other	M.SC IN BIOTECHNOLOGY	INSTITUTE OF BIOTECHNOLOGY, B.Z. U, MULTAN	2008
	B.SC (BACHELOR OF SCIENCE)	B.Z. U, MULTAN	2006

REGISTRATION IN PROFESSIONAL ASSOCIATIONS

Date of registration	Association	City

FOREIGN LANGUAGES

Languages	level of knowledge
ENGLISH	EXPERT



URDU	EXPERT
ITALIAN	BASIC

AWARDS, ACKNOWLEDGEMENTS, SCHOLARSHIPS

Year	Description of award
2022	Selected for postdoc fellowship at the Department of Biology, University of Padova, Italy.
2013	Won PhD scholarship under the faculty development program of Bahauddin Zakariya University, Multan-Pakistan Higher Education Commission of Pakistan (HEC) approved doctoral supervisor.

TRAINING OR RESEARCH ACTIVITY

<p>RESEARCH WORK</p> <p>In the first part of my Ph.D. research, I studied the impact of the import of <i>orf77</i> cargo RNA into Mitochondria on transcriptome analysis by using RT-PCR. In the second part, the influence of <i>orf77</i> cargo-induced transcriptome changes on plant physiology was studied. These findings have been published in <i>Cells</i> (doi.org/10.3390/cells8060583) as a first author. Then I studied the role of OEX protein in the DNA repair system in plants. The manuscript from this work is in the pipeline. During postdoc project, I studied SOUP: signaling the organelle-folded protein response in plants. In this research, I have applied temperature (42°C) and doxycycline stresses in plants to analyze the transcriptome response at the molecular level by increasing the expression of genes associated with the mitochondrial stress response, such as alternative oxidase and mitochondrial heat shock proteins 70-1 and 5. At the phenotypic level, it is related to retardation of growth, inhibition of the primary root, and elongation of the root hairs. The research article is in the pipeline. So far, I have published 27 research articles</p>

PROJECT ACTIVITY



PATENTS

Patent

CONGRESSES AND SEMINARS

Date	Title	Place

PUBLICATIONS

1. Niazi AK, Delannoy E, **Iqbal RK***, Mileshina D, Val R, Gabryelska M, Wyszko E, Soubigou-Taconnat L, Szymanski M, Barciszewski J, Weber-Lotfi F. Mitochondrial transcriptome control and inter-compartment cross-talk during plant development. *Cells*. 2019 Jun 13;8(6):583
2. Dietrich A, Wallet C, **Iqbal RK**, Gualberto JM, Lotfi F. Organellar non-coding RNAs: emerging regulation mechanisms. *Biochimie*. 2015 Oct 1;117:48-62.
3. Gilani M, Danish S, Ahmed N, Rahi AA, Akrem A, Younis U, Irshad I, **Iqbal RK***. Mitigation of drought stress in spinach using individual and combined applications of salicylic acid and potassium. *Pak. J. Bot.* 2020 Oct 1;52(5):1505-13.
4. Sabir A, Iftikhar A, Ijaz MU, Hussain G, Rasul A, **Iqbal RK**, Sajid F, Anwar H. Retrospective study of frequency of ABO and Rhesus blood group among population of Safdarabad and Faisalabad cities of Pakistan. *BMC Research Notes*. 2021 Dec; 14(1):1-5.
5. Amjad SF, Mansoor N, Din IU, **Iqbal RK**, Jatoi GH, Murtaza G, Yaseen S, Naz M, Danish S, Fahad S, Datta R. Application of zinc fertilizer and mycorrhizal inoculation on physio-biochemical parameters of wheat grown under water-stressed environment. *Sustainability*. 2021 Oct 4;13(19):11007.
6. Iqbal J, Kiran S, Hussain S, **Iqbal RK**, Ghafour U, Younis U, Zarei T, Naz M, Geremi SG, Danish S, Ansari MJ. Acidified biochar confers improvement in quality and yield attributes of sufaid chaunsa mango in saline soil. *Horticulturae*. 2021 Nov;7(11):418.



7. Sardar R, Zulfiqar A, Ahmed S, Shah AA, **Iqbal RK**, Hussain S, Danish S, Ghafoor U, Fahad S, Krucky J, Al Obaid S. Proteomic changes in various plant tissues associated with chromium stress in sunflower. *Saudi Journal of Biological Sciences*. 2022 Apr 1;29(4):2604-12
8. Aziz MN, **Iqbal RK***, Irfan M, Parveen A, Asif M, Ozubek S, Aktas M, Said MB, Iqbal F. First report on molecular epidemiology, seasonality and phylogeny of *Toxoplasma gondii* infecting goats from Khanewal district in Punjab, Pakistan. *Acta Tropica*. 2022 Apr 1;228:106304.
9. Aziz MN, Irfan M, Parveen A, Asif M, Ijaz M, Mumtaz S, Ozubek S, Aktas M, **Iqbal RK***, Iqbal F. Prevalence, epidemiology, seasonality, and phylogeny of *Anaplasma marginale* in blood samples of goats collected from Punjab, Pakistan. *Tropical Animal Health and Production*. 2022 Feb;54(1):74.
10. Iftikhr A, Nausheen R, Mukhtar I, **Iqbal RK**, Raza A, Yasin A, Anwar H. The regenerative potential of honey: A comprehensive literature review. *Journal of Apicultural Research*. 2023 Jan 1;62(1):97-112.
11. Jamil H, Awan A, Akbar A, Babar M, Akhtar S, **Iqbal RK**, Iqbal F. A study of association between presence or absence of GSTT1 and GSTM1 and/or single nucleotide polymorphism in FABP2 and GSTP1 with incidence of diabetes type 2: A case-control study. *JPMMA. The Journal of the Pakistan Medical Association*. 2022 Apr 1; 72(4):714-20.
12. Taalay I, **Iqbal RK***, Asif M, Ahmad A, Amjad M, Anwar FN, Aktas M, Said MB, Iqbal F. Molecular survey of *Toxoplasma gondii* in cattle and buffaloes and phylogenetic position of Pakistani isolates based on ITS-1 gene. *Comparative Immunology, Microbiology and Infectious Diseases*. 2022 May 1;84:101782.
13. Khan RW, Awan FS, **Iqbal RK***. Evaluation and identification of salt tolerant wheat through in vitro salinity induction in seeds. *Pak. J. Bot.* 2022 Dec 1;54(6):1987-93.
14. Saeed A, Rafiq Z, Imran M, Saeed Q, Saeed MQ, Ali Z, **Iqbal RK**, Hussain S, Khaliq B, Mehmood S, Akrem A. In-silico Studies Calculated a New Chitin Oligomer Binding Site Inside Vicilin: A Potent Antifungal and Insecticidal Agent. Dose-Response. 2022 Jun 11;20(2):15593258221108280.
15. Khan RW, Khan RS, Awan FS, Akrem A, Iftikhar A, Anwar FN, Alzahrani HA, Alsamadany H, **Iqbal RK***. Genome-wide association studies of seedling quantitative trait loci against salt tolerance in wheat. *Frontiers in Genetics*. 2022;13.
16. Ali Y, Iqbal S, Aatif HM, Naveed K, Khan AA, Ijaz M, Magsi MM, Ahmad S, Syed AU, Magsi MA, **Iqbal RK**. Predicting Stripe Rust Severity in Wheat Using Meteorological Data



- with Environmental Response Modeling. *Journal of King Saud University-Science*. 2023 May 1;35(4):102591.
17. Syed A, Elgorban AM, Bahkali AH, Eswaramoorthy R, **Iqbal RK**, Danish S. Metal-tolerant and siderophore producing *Pseudomonas* fluorescence and *Trichoderma* spp. improved the growth, biochemical features and yield attributes of chickpea by lowering Cd uptake. *Scientific Reports*. 2023 Mar 18;13(1):4471.
 18. Kainat N, Saeed A, Ali A, Khaliq B, Mehmood S, Saeed MQ, **Iqbal RK**, Khalid S, Akrem A. In silico modeling and docking of salicylic acid revealing the sod like activity of an antimicrobial seed vicilin of *capsicum annuum* l. Var. *Grossum*. *Pak. J. Bot.*;55:5.
 19. Zerlasht M, Javaria S, Murtaza MA, **Iqbal RK**, Quddoos MY, Azhar S, Syed A, Elgorban AM. Antimicrobial Potential and Phyto-Physio-Chemical Characterization of Brans from Wheat, Oat, and Rice. *Journal of King Saud University-Science*. 2023 May 16:102709.
 20. Iqbal M, Raja NI, Khan SA, Ali a, Hanif A, Hussain M, Anwar T, Qureshi H, Saeed M, Rauf A, Alharbi SA, **Iqbal RK**. Evaluation of green synthesized silver nanoparticles against bacterial pathogenic strains of plants. *Pak. J. Bot.*;55: 5.
 21. Naeem, M., Hira I, M. N., Marrium, F., Khubaib, H. M., Gul, S., Rais, A., **Iqbal RK***, & Alahmadi, T.A. (2023). New insights for exploring the bioactive nature and biomedical activities of *allium cepa*. *Pak. J. Bot*, 55(6), 2203-2209
 22. Kumar, S, Rana, S. S, Sharma, N., **Iqbal RK**, Qureshi, H., Anwar, & Eswaramoorthy, R. (2023). Weed phyto-sociology and diversity in relation to conservation agriculture and weed management strategies under Northwestern Indian Himalayas. *Journal of King Saud University-Science*. August 2023 , p102728
 23. Iftikhar, A., Nausheen, R., Khurshid, M., **Iqbal RK.**, Muzaffar, H., Malik, A., & Anwar, H. Pancreatic Regenerative Potential of Manuka Honey Evidenced Through Pancreatic Histology and Levels of Transcription Factors in Diabetic Rat Model. Available at SSRN 4489294
 24. Aslam, J., Shahzad, M. I., Ali, H. M., Ramzan, M., Mustafa, M. Z., **Iqbal RK***, & Danish, S. (2023). Antioxidant and anti-inflammatory potentials of aerial and floral parts of *Neurada procumbens* extracts: In vitro and in vivo studies. *Journal of King Saud University-Science*, 35(7), 102822.
 25. Irfan, M., Chang, S. C., **Iqbal, RK***, Tanveer, M., Asif, M., Khan, A., & Chen, C. C. (2023). Seasonality, epidemiology and phylogeny of *Theileria ovis* with a note on hematological and



biochemical changes in asymptomatic infected goats from Pakistan. *PloS one*, 18(8), e0290620.

26. Qian, L., Dawar, K., Ullah, I., Irfan, M., Zhang, Z., Mian, I. A., & Alarfaj, A. A., **Iqbal, RK** (2023). Zinc foliar application mitigates cadmium-induced growth inhibition and enhances wheat growth, chlorophyll contents, and yield. *ACS Omega*.

27. MINHAS, A., SAEED, M. S., EHSAN, A., MURTAZA, G., AKRAM, M., MEHRAN, **Iqbal RK*** (2024). Response of integrated use of humic acid and chemical fertilizer on growth and yield of rice crop (*Oryza sativa* L.) in calcareous soil. *Pak. J. Bot*, 56, 3.

OTHER INFORMATION

2 Doctoral students are preparing their thesis under my supervision.

1 Ph.D. student defended his thesis successfully under my supervision.

13 Master students completed their thesis under my supervision and currently 2 are working on their projects.

Expertise's:

- Strong background in molecular biology and plant science.
- Experience with confocal microscopy and approaches for genetic manipulation, tissue culture, and organelle genetics in plants as well as managing a lab.
 - Isolation and estimation of genomic DNA/RNA, cDNA synthesis, PCR amplification, Restriction digestion, carried out agarose and quantitative real-time PCR of expression analysis.
 - Experienced in sample preparation for transcriptome analysis by N.G.S
 - Knowledge of computational and statistical analysis of biological systems by using software's viz. SPSS-17, and GraphPad Prism 5, BLAST, programming using Python and R, Primer design using NCBI and other web based bioinformatics tools.
 - Experienced in Genome-wide association studies (GWAS) analysis.



- Data analysis, manuscript preparation.
- Isolation and estimation of proteins, PAGE-SDS & Native.
- Student supervision at Master and Doctoral level.

Main research direction:

- Plant Mitochondrial Genetics.
- Cop Stress physiology and Molecular Biology,
- Plant Cell signal Transduction

Teaching Experience:

- Introduction to Life Sciences (undergraduate)
- Experimental Techniques in Modern Botany (Undergraduate)
- Plant Physiology and Experiments (undergraduate).
- Topics in Botany and Developmental Biology. (Ph.D. Candidates).

Declarations given in the present curriculum must be considered released according to art. 46 and 47 of DPR n. 445/2000.

The present curriculum does not contain confidential and legal information according to art. 4, paragraph 1, points d) and e) of D.Lgs. 30.06.2003 n. 196.

Please note that CV WILL BE PUBLISHED on the University website and It is recommended that personal and sensitive data should not be included. This template is realized to satisfy the need of publication without personal and sensitive data.

Please DO NOT SIGN this form.

Place and date: ___MULTAN_____, _04/03/2024_____

