

Dr. MURTAZA KHAN

International Research Professor (Assistant Professor), Yeungnam University

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Profile

Name: Murtaza Khan

Nationality: Pakistan

Passport No: LY4122153

Current Address: Department of Horticulture and Life Science, Yeungnam University, Republic of Korea

Home Address: Village Shero Khat Kalay, P/O Kotki, Mardan, KPK, Pakistan

Current Position

➤ **International Research Professor (Assistant Professor)**

Department of Horticulture and Life Science, Yeungnam University, Republic of Korea

Education

➤ **Ph.D. (Plant Biosciences) 2022**

Institution: Kyungpook National University, Republic of Korea

➤ **M.Phil. (Plant Biosciences) 2019**

Institution: Kyungpook National University, Republic of Korea

➤ **M.Sc. (Plant Sciences) 2009**

Institution: Kohat University of Science and Technology (KUST), Pakistan

➤ **B.Sc. (Plant Sciences) 2007**

Institution: University of Peshawar, Pakistan

Research Specialization

- Plant functional genomics techniques
- Role of nitric oxide and melatonin in plant growth and defense as a signalling molecule
- Role of PGPRB in plant growth and defense
- DNA/RNA extractions, gel electrophoresis, cDNA synthesis, PCR analysis, antioxidant activities and cloning

Professional Experience

- International Research Professor (Assistant Professor), Department of Horticulture and Life Science, Yeungnam University, Republic of Korea

Academic and Research Honors

- Awarded best presentation certificate under Brain of Korea (BK21), 2022

Teaching Experience

- As a biology lecturer at Ghazali Scholl and College Katlang, KPK, Pakistan
- As a lecturer at Government Post-graduate College Mardan, KPK, Pakistan

Students co-supervised and trained at Kyungpook National University

- Tiba Nazar Ibrahim AL-Azzawi under the research title “Evaluation of Iraqi rice cultivars under water deficit using drought responsive markers” and “Elucidating the role of nitric oxide-suppressed genes in growth and defense”
- Anousone Inthavong under the research title “Exogenous nitric oxide-induced drought tolerance in rice via regulating antioxidant machinery and gene expression”
- Birhanu Miressa Borena under the research title “Exogenous nitric oxide-induced Zn stress tolerance in rice via regulation of antioxidant machinery and gene expiration”
- Irasapa Tanimu Ukob under the research title “Exogenous nitric oxide-induced chromium stress tolerance in rice via regulation of antioxidant machinery and gene expression”
- Chrizostom Julius Niyofasha under the research title “Exogenous nitric oxide-induced Hg stress tolerance in rice (*Oryza sativa* L.) via regulation of antioxidant machinery and gene expression”
- Phan Ngoc Minh under the research title “Exogenous nitric oxide-induced Cu stress tolerance in rice via regulation of antioxidant machinery and gene expression”
- Waqas Rahim under the research title “Lead toxicity in rice is mitigated by exogenously applied nitric oxide, via regulation of antioxidant machinery and metal stress-related transcripts”
- Tran Thi My Can under the research title “*Pseudomonas koreansis* induce-drought tolerance via regulating antioxidant machinery and gene expression”

- Eddy Cervantes Zavala under the research title “*Brevundimonas vesicularis* and *Pseudomonas koreansis* to induce-drought tolerance via regulating antioxidant machinery and gene expression, in *Arabidopsis thaliana*”
- Justine Nathanael Kalleku under the research title “*Pseudomonas koreansis* Induced-salt Tolerance via Regulating Antioxidant Machinery and Gene Expression”
- Samsor Ihsan “*Brevundimonas vesicularis* Induced Genes Expressions, Endogenous Phytohormone and Improve Antioxidant System of *Arabidopsis thaliana* Under Drought Stress”
- Enock Cherogony Tallam “Evaluation of the role of *Brevundimonas vesicularis* in inducing salt tolerance through regulating antioxidant machinery and gene expression”

Reviewer

Reviewed many papers in different journals of plant sciences

Editor

Guest Editor in *agriculture* (MDPI) and Review Editor in Plant Genomics (Frontiers in Plant Science)

Research Publications

1. **Nitric oxide, a Key Modulator in the Alleviation of Environmental Stress-Mediated Damage in Crop Plants: A Meta-Analysis**
Murtaza Khan, Tiba Nazar Ibrahim Al Azzawi, Sajid Ali, Byung-Wook Yun, Bong-Gyu Mun
26 May 2023 *Plants*
2. **Synergistic effect of melatonin and *Lysinibacillus fusiformis* (PLT16) to mitigate drought stress via phytohormones, antioxidant and physio-molecular response in soybean plants**
8 May 2023 *International Journal of Molecular Science*
Muhammad Imran, Clems Luzolo Mpovo, Muhammad Aaqil Khan, Shifa Shaffique, Daniel Ninson, Saqib Bilal, **Murtaza Khan**, Eun-Hae Kown, Sang-Mo kang, Byung-Wook Yun, In-Jung Lee
3. **Enhanced Resistance of *atnigr1* against *Pseudomonas syringae* pv. tomato Suggests Negative Regulation of Plant Basal Defense and Systemic Acquired Resistance by *AtNIGRI* Encoding NAD (P)-Binding Rossmann-Fold in *Arabidopsis thaliana***
24 April 2023 *antioxidants*
Tiba Nazar Ibrahim Al Azzawi, **Murtaza Khan**, Bong-Gyu Mun, Sang-Uk Lee, Muhammad Imran, Adil Hussain, Nkulu Kabange Rolly, Da-Sol-Lee, Sajid Ali, In-Jung-Lee, Byung-Wook Yun
4. **Alleviation of Hg-, Cr-, Cu-, and Zn-Induced Heavy Metals Stress by Exogenous Sodium Nitroprusside in Rice Plants**
13 March 2023 *Plants*
Chrizostom Julius Niyofasha, Birhanu Miressa Borena, Irasapa Tanimu Ukob, Phan Ngoc Minh, Tiba Nazar Ibrahim Al Azzawi, Muhammad Imran, Sajid Ali, Anousone Inthavong, Bong-Gyu Mun, In-Jung-Lee, **Murtaza Khan***, Byung-Wook Yun
5. **Nitric Oxide Acts as a Key Signaling Molecule in Plant Development under Stressful conditions**
01 March 2023 *International Journal of Molecular Science*
Murtaza Khan, Sajid Ali, Tiba Nazar Ibrahim Al Azzawi, Byung-Wook Yun
6. **Physiological and ultrastructural changes in *Dendranthema morifolium* cultivars, exposed to different cadmium stress conditions**
28 January 2023 *agriculture*
Luqman Muhammad, Salahuddin, Asif Khan, Yunwei Zhou, Miao He, **Murtaza Khan**, Sajid Ali

7. **The Key Roles of ROS and RNS as Signaling Molecules in Plant-Microbe Interactions**
25 January 2023 **Antioxidants**
Murtaza Khan, Sajid Ali, Tiba Nazar Ibrahim Al Azzawi, Saddam Saqib, Fazal Ullah, Asma Ayaz, Wajid Zaman
8. **Ameliorative symbiosis of *Serratia fonticola* (S1T1) under salt stress condition enhance growth-promoting attributes of *Cucumis sativus* L**
25 January 2023 **Symbiosis**
Yong-Sun Moon, Murtaza Khan, Muhammad Aqil Khan, Sajid Ali
9. **Exogenous Phytohormones and Fertilizers Enhance *Jatropha curcas* L. Growth through Regulation of Physiological, Morphological, and Biochemical Parameters**
19 December 2022 **plants**
Rahmatullah Jan, Murtaza Khan, Muhammad Adnan, Sajjad Asif, Saleem Asif, Kyung-Min Kim, Waheed Murad
10. ***Parthenium hysterophorus*'s Endophytes: The Second Layer of Defense against Biotic and Abiotic Stresses**
5 October 2022 **microorganisms**
Asif Khan, Sajid Ali, Murtaza Khan, Muhammad Hamayun and Yong-Sun Moon
11. **Bioactivity and Therapeutic Potential of Kaempferol and Quercetin: New Insights for Plant and Human Health**
5 October 2022 **plants**
Rahmatullah Jan, Murtaza Khan, Sajjad Asif, Lubna, Kyung-Min Kim
12. **Melatonin Function and Crosstalk with Other Phytohormones under Normal and Stressful Conditions**
22 September 2022 **genes**
Murtaza Khan, Sajid Ali, Hakim Manghwar, Saddam Saqib, Fazal Ullah, Asma Ayaz, Wajid Zaman
13. **Exogenously applied sodium nitroprusside mitigates lead toxicity in rice by regulating antioxidants and metal stress-related transcripts**
27 August 2022 **International Journal of Molecular Science**
Waqas Rahim, Murtaza Khan, Tiba Nazar Ibrahim Al Azzawi, Anjali Pande, Nusrat Jahan Methela, Sajid Ali, Muhammad Imran, Da-Sol Lee Lee, Geun-Mo Lee, Bong-Gyu-Mun, Yong-Sun Moon, In-Jun Lee, Byung-Wook Yun
14. **Nitric Oxide Modulates Glycine Max L. Growth and Physio-Molecular Responses during Flooding Stress**
25 July 2022 **Annal of Agriculture and Crop Sciences**
Muhammad Imran, Sang-Mo Kang, Khan AL, Khan MA, Raheem Shahzad, Saqib Bilal, Murtaza Khan, Yunha Kim, Byung-Wook Yun, Abdul Latif Khan, In-Jung Lee
15. **Correction: Pande et al. Nitric Oxide Signaling and Its Association with Ubiquitin-Mediated Proteasomal Degradation in Plants**
18 May 2022 **International Journal of Molecular Science**
Anjali Pande, Bong-Gyu Mun, Murtaza Khan, Waqas Rahim, Da-Sol Lee, Geun-Mo Lee, Tiba Nazar Ibrahim Al Azzawi, Adil Hussain, Byung-Wook Yun
16. **Phytohormonal regulation through protein S-nitrosylation under Stress**
February 2022 **Frontiers in Plant Sciences**
Anjali Pande, Bong-Gyu Mun, Waqas Rahim, Murtaza Khan, Da-Sol Lee, Tiba Nazar Ibrahim Al Azzawi, Adil Hussain, Byung-Wook Yun
17. **The Combined Inoculation of *Curvularia lunata* AR11 and Biochar Stimulates Synthetic Silicon and Potassium Phosphate Use Efficiency, and Mitigates Salt and Drought Stress in Rice**
March 2022 **Frontiers in Plant Sciences**
Arjun Adhikari, Muhammad Aqil Khan, Muhammad Imran, Ko-Eun Lee, Sang-Mo Kang, Jin-Yong Shin, Gil-Jae Joo, Murtaza Khan, Byung-Wook Yun, In-Jung Lee

- 18. Nitric Oxide Signaling and Its Association with Ubiquitin-Mediated Proteasomal Degradation in Plants**
January 2022 International Journal of Molecular Science
Anjali Pande, Bong-Gyu Mun, **Murtaza Khan**, Waqas Rahim, Da-Sol Lee, Geun-Mo Lee, Tiba Nazar Ibrahim Al Azzawi, Adil Hussain, Byung-Wook Yun
- 19. Enhanced Resistance of atbzip62 against Pseudomonas syringae pv. tomato Suggests Negative Regulation of Plant Basal Defense and Systemic Acquired Resistance by AtbZIP62 Transcription Factor**
October 2021 International Journal of Molecular Science
Rizwana Begum, Rolly Nkulu Kabange, Rupesh Tayade, **Murtaza Khan**, Muhammad Shahid, Byung-Wook Yun
- 20. Melatonin Ameliorates Thermotolerance in Soybean Seedling through Balancing Redox Homeostasis and Modulating Antioxidant Defense, Phytohormones and Polyamines Biosynthesis**
August 2021 Molecules MDPI
Muhammad Imran, Muhammad Aqil Khan, Raheem Shahzad, Saqib Bilal, **Murtaza Khan**, Byung-Wook Yun, Abdul Latif Khan, In-Jung Lee
- 21. The role of Nitric Oxide-Induced ATILL6 in Growth and Disease Resistance in Arabidopsis thaliana**
02 July 2021 Frontiers in Plant Science
Murtaza Khan, Tiba Nazar Ibrahim Al Azzawi, Anjali Pande, Bong-Gyu-Mun, Da-Sol Lee, Adil Hussain, Byung-Hyun Lee, Byung-Wook Yun
- 22. Effects of lead (Pb)-induced oxidative stress on morphological and physio-biochemical properties of rice**
July 2021 Biocell
Murtaza Khan, Tiba Nazar Ibrahim Al Azzawi, Muhammad Imran, Adil Hussain, Bong-Gyu-Mun, Anjali Pande, Byung-Wook Yun
- 23. Rhizospheric Bacillus spp. Rescues Plant Growth Under Salinity Stress via Regulating Gene Expression, Endogenous Hormones, and Antioxidant System of Oryza sativa L**
11 June 2021 Frontiers in Plant Sciences
Muhammad Aqil Khan, Muhammad Hamayun, Sajjad Asaf, **Murtaza Khan**, Byung-Wook Yun, In-Jung Lee
- 24. Exogenous Melatonin mediates the regulation of endogenous nitric oxide in Glycine max L. to reduce effects of drought stress**
August 2021 Environmental and Experimental Botany
Muhammad Imran, Raheem Shahzad, Saqib Bilal, Qari Muhammad Imran, **Murtaza Khan**, Sang-Mo Kang, Abdul Latif Khan, Byung-Wook Yun, In-Jung Lee
- 25. NO Network for Plant-Microbe Communication Underground: A Review**
17 March 2021 Frontiers in Plant Sciences
Anjali Pande, Bong-Gyu Mun, Da-Sol Lee, **Murtaza Khan**, Geun-Mo Lee, Adil Hussain, Byung-Wook Yun
- 26. Lead (Pb)-Induced Oxidative Stress Alters the Morphological and Physio-Biochemical Properties of Rice (Oryza sativa L.)**
22 February 2021 Agronomy MDPI
Murtaza Khan, Rolly Nkulu Kabange, Tiba Nazar Ibrahim Al Azzawi, Muhammad Imran, Bong-Gyu Mun, In-Jung Lee, Byung-Wook Yun
- 27. Evaluation of Iraqi Rice Cultivars for Their Tolerance to Drought Stress**
6 November 2020, MDPI agronomy
Tiba Nazar Ibrahim Al Azzawi, **Murtaza Khan**, Adil Hussain, Muhammad Shahid, Qari Muhammad Imran, Bong-Gyu-Mun, Sang-Uk Lee, Byung-Wook Yun

- 28. Drought-induced AtBZIP62 transcription factor regulates drought stress response in Arabidopsis**
9 September 2020, Plant Physiology and Biochemistry
 Nkulu Kabange Rolly, Qari Muhammad Imran, Muhammad Shahid, Muhammad Imran, **Murtaza Khan**, In-Jung Lee, Byung-Wook Yun
- 29. Nitric oxide-induced AtAO3 differentially regulates plant defense and drought tolerance in Arabidopsis thaliana**
30 December 2019 BMC Plant Biology
Murtaza Khan, Qari Muhammad Imran, Muhammad Shahid, Bong-Gyu-Mun, Sang-Uk Lee, Aqil Khan, Adil Hussain, In-Jung Lee, Byung-Wook Yun
- 30. Comprehensive Analyses of Nitric Oxide-Induced Plant Stem Cell-Regulated Genes in Arabidopsis thaliana**
March 2019, MDPI genes
 Muhammad Shahid, Qari Muhammad Imran, Adil Hussain, **Murtaza Khan**, Sang-Uk Lee, Bong Gyu-Mun, Byung-Wook Yun
- 31. Plant-derived Smoke – the magical seed sprouter: A view from traditional to recent advancements**
July 2014, ICJBS
 Qari Muhammad Imran, Sajjad Asaf, Muhammad Jamil, Amana Khatoon, Muhammad Kamran, Noreen Falak, **Murtaza Khan**, Shafiq-ur-Rehman

Publication under initial validation and review

- 1. Brevundimonas vesicularis Induced Drought Tolerance of Arabidopsis thaliana by Improving Antioxidant Machinery and Gene Expression**
7 Jun 2023, Manuscript ID: 1235959
Frontiers in Plant Science
 Can Thi My Tran, **Murtaza Khan**, Tiba Nazar Ibrahim Al Azzawi, Sajid Ali, Byung-Wook Yun
- 2. Role of nitric oxide-induced AtEMB1144 gene in the growth and immune responses of Arabidopsis thaliana**
24 May 2023, Manuscript ID: 1228015
Frontiers in Plant Science
Murtaza Khan, Tiba Nazar Ibrahim Al Azzawi, Rizwana Begum Syed Nabi, Nkulu Kabange Rolly, Adil Hussain, Sajid Ali, Bong-Gyu Mun, Da-sol Lee, Byung-Wook Yun
- 3. Plant Growth in Microgravity: Gravisensitivity, the Influence of Microgravity, and Plant Response**
6 April 2023, Manuscript ID: 1201635
Frontiers in Plant Science
 Muhammad Farooq, Sajid Ali, **Murtaza Khan**, Yoon-Hee Jang, Eun-Gyeong Kim, Dan-Dan Zhao, Kyung-Min Kim

Conferences

- 1. Nitric oxide-induced AtAO3 differentially regulates plant defense against Pseudomonas syringae pv. tomato in Arabidopsis thaliana**
2018, The Korean Society of Pesticide Science
Murtaza Khan, Qari Muhammad Imran, Muhammad Shahid, Bong-Gyu Mun and Byung-Wook Yun
- 2. Nitric Oxide-induced AtWRKY6 Positively Regulates Plant Growth and Defense Response**
2018, Korean Society of Crop Science, 2018, Republic of Korea
 Qari Muhammad Imran, **Murtaza Khan**, Muhammad Shahid, Noreen Falak, Bong-Gyu Mun,

Byung Wook Yun

- 3. A Putative Acetyltransferase Gene Differentially Regulates Multiple Traits in Plants Under Biotic and Abiotic Stresses**
2018 The Korean Society of Pesticide Science

Muhammad Shahid, **Murtaza Khan**, Sang-UK Lee, Bong-Gyu Mun, Byung-Wook Yun

- 4. Characterization of nitric oxide-induced IAA-leucine resistant-like gene in plant growth and immunity**
2022, The KSPP 60th Annual Meeting and Fall International Conference of the Korean Society of Crop Science

Murtaza khan, Tiba Nazar Ibrahim Al Azzawi, Anjali Pande, Bong-Gyu Mun, Da-sol Lee, Adil Hussain, Cho-Jun Ho, Byung-Wook Yun

- 5. The Role of Nitric Oxide-induced *AtILL6* in Growth and Disease Resistance in *Arabidopsis thaliana***

Murtaza Khan (As a speaker)

2022, Annual Meeting and Fall International Conference

- 6. Nitric oxide-induced downregulation of a NAD(P)-binding Rossmann-fold superfamily gene negatively impacts growth and defense in *Arabidopsis thaliana***
2022, Annual Meeting and Fall International Conference of the Korean Society of Crop Science

Tiba Nazar Ibrahim Al Azzawi, **Murtaza khan**, Bong-Gyu Mun, Song-Uk Lee, Waqas Rahim, Anjali Pande, Nusrat Jahan Methela, Da-sol Lee, Cho-Jun Ho, Byung-Wook Yun

Language Proficiency

- 1. English** (Speaking, Reading and Writing)
- 2. Urdu** (Speaking, Reading and Writing)
- 3. Pushto** (Speaking, Reading and Writing)
- 4. Arabic** (Reading and Writing)
- 5. Korean** (Reading and Writing)

References

1. Prof. Dr. Byung-Wook Yun

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2. Prof. Dr. In-Jung Lee

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3. Prof. Dr. Adil Hussain

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Department of Entomology
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