

# Curriculum Vitae

## Md Ziaur Rahman Bhuiyan PhD

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### Contact

Associate Professor  
Department of Plant Pathology  
Sher-e-Bangla Agricultural University  
Dhaka-1207, Bangladesh.  
E-mail: ziaur\_1820@sau.edu.bd; ziaur\_1820@yahoo.com  
Cell Phone: +88 01918-421423; +1(701)730-8468 (WhatsApp)  
<https://sau.edu.bd/>

### Research interest

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Mycology, molecular detection, and characterization of pathogens, fungicide resistance mutations, confocal microscopy, population genetics, bio-control, postharvest pathology, phyto-bacteriology, seed pathology etc.

### Education

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PhD in Plant Pathology	2018 to 2022
North Dakota State University, USA	
MS in Plant Pathology	2009 to 2011
Sher-e-Bangla Agricultural University, Dhaka-1207, Bangladesh	
B. Sc. Ag (Hons.)-Agriculture	2005 to 2009
Sher-e-Bangla Agricultural University (SAU), Dhaka-1207, Bangladesh	

### Research Experience

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Postdoctoral Researcher, North Carolina State University, USA	2023 to 2024
Doctoral Student (Graduate Research Assistant), North Dakota State University, USA	2018 to 2022
MS research, Sher-e-Bangla Agricultural University, Bangladesh	2009 to 2011

### Publications (published/accepted)

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- Bhuiyan, M. Z. R.,** Solanki, S., Luis E. Del Rio Mendoza, Borowicz, P., Lakshman, D., Qi, A., Ameen, G., Khan, M. F. R. 2023. Histopathological investigations of varietal responses to *Cercospora beticola* infection process on sugar beet leaves. Plant Disease. doi: 10.1094/PDIS-03-23-0562-RE.
- Bhuiyan, M. Z. R.,** Luis E. Del Rio Mendoza, Lakshman, D., Qi, A., Khan, M. F. R. 2023. Evaluation of adjuvants added to fungicides for controlling *Cercospora* leaf spot on sugar beet. Crop Protection. 175:106471.
- Bhuiyan, M. Z. R.,** Luis E. Del Rio Mendoza, Lakshman, D., Qi, A., Khan, M. F. R. 2023. Efficacies of different inoculum forms of *Rhizoctonia solani* AG 2-IIIB for resistance screening of sugar beet cultivars. Journal of Plant Pathology. doi.org/10.1007/s42161-023-01485-z
- Bhuiyan, M. Z. R.,** Lakshman, D., Luis E. Del Rio Mendoza, Ismaiel, A., Khan, M. F. R. 2023. Identification and characterization of *Pythium deliense* causing sugar beet (*Beta vulgaris* L.) root rot in Grand Forks, North Dakota. Plant Health Progress. <https://doi.org/10.1094/PHP-06-23-0058-RS>
- Bhuiyan, M. Z. R.,** Lakshman, D., Kandel, S., Ismaiel, A., Bhandari, S. and Khan, M. F. R. 2024. Identification and Characterization of *Penicillium* spp. Associated with Storage Rot of Sugar Beet in the Red River Valley of Minnesota and North Dakota, USA. Plant Health Progress. <https://doi.org/10.1094/PHP-08-24-0079-RS>
- Bhuiyan, M. Z. R.,** Lakshman, D., Ismaiel, A., Prasanta, B., Khan, M.F.R. 2024. Identification of *Colletotrichum spaethianum* causing sugar beet leaf spot in North Dakota, USA. Journal of Plant Protection Research. 65(2):223-229. <https://doi.org/10.24425/jppr.2025.155058>
- Bhuiyan, M. Z. R.,** Lakshman, D., Luis Del Rio Mendoza, Aiming Qi, and Khan, M.F.R. 2024. Effects of inoculum density of *R. solani* AG 2-IIIB and age of plant on root rot severity in sugar beet. Journal of Plant Protection Research. 65(1): 125-132. <https://doi.org/10.24425/jppr.2025.153824>

- 8. Bhuiyan, M. Z. R.,** Lakshman, D., Luis Del Rio Mendoza and Khan, M. F. R. 2021. Comparison of crown and root inoculation method for evaluating the reaction of sugar beet cultivars to *Rhizoctoniasolani* AG 2-2 IIIB. Crop Protection. 163: 106120. <https://doi.org/10.1016/j.cropro.2022.106120>
- 9. Bhuiyan, M. Z. R.,** Lakshman, D, Mosher, P. and Khan, M. F. R. 2021. Identification of *Rhizopus arrhizus* (Fisher) causing root rot in sugar beet in North Dakota and Minnesota, USA. Journal of Plant Pathology. 104:357-362. <https://doi.org/10.1007/s42161-021-00967-2>
- 10. Bhuiyan, M. Z. R.,** Lakshman, D., Luis Del Rio Mendoza, Mosher, P. and Khan, M. F. R. 2021. *Sclerotinia sclerotiorum* (Lib) deBary causes root rot and necrosis on sugar beet in Moorhead, MN, USA. Journal of Plant Protection Research. 61(4):384-391. <https://doi.org/10.24425/jppr.2021.139247>
- 11. Bhuiyan, M. Z. R.,** Akter, M., Jahan, I., Siddiqua, A., Alom, M. F. and Miah, M. A. 2025. First Report of *Phoma betae* Causing Postharvest Root Rot in Sweetpotato (*Ipomoea batatas* L.) in Bangladesh. Australasian Plant Pathology (Accepted).
- 12. Khan, M. F. R., M. Z. R. Bhuiyan,** Lakshman, D., Luis E. Del Rio Mendoza, Abdolbaset Azizi. 2023. *Fusarium clavum* causes sugar beet seedling root rot in Wyoming, USA. Canadian Journal of Plant Pathology. <https://doi.org/10.1080/07060661.2024.2303650>
- 13. Khan, M. F. R., Bhuiyan, M. Z. R.,** Luis E. Del Rio Mendoza, Lakshman, D., Ismaiel, A., Abdolbaset, A. and Ameen, G. 2023. First report of *Fusarium solani* (Mart.) Sacc. causing sugar beet seedling rot in Minnesota, USA. Journal of Plant Pathology. [doi.org/10.1007/s42161-023-01518-7](https://doi.org/10.1007/s42161-023-01518-7)
- 14. Khan, M. F. R., Bhuiyan, M. Z. R.,** Luis E. Del Rio Mendoza, Lakshman, D., Abdolbaset, A., Ameen, G., Arslan, S. 2023. First report of leaf spot of sugar beet caused by *Stemphylium vesicarium* in Minnesota, USA. Plant Disease. [doi: 10.1094/PDIS-02-23-0256-PDN](https://doi.org/10.1094/PDIS-02-23-0256-PDN)
- 15. Liu, Y., Luis E. Del Rio Mendoza, Qi, A., Lakshman, D., Bhuiyan, M. Z. R. and Khan, M. F. R.** 2023. Resistance to QoI and DMI fungicides do not reduce virulence of *C. beticola* isolates in North Central USA. Plant Disease. 107(9):2825-2829. <https://doi.org/10.1094/PDIS-11-21-2583-RE>
- 16. Khan, M. F. R., Bhuiyan, M. Z. R.,** Lakshman, D. Liu, Y., Mosher, P., Peters, D. 2022. First report of damping off and seedling rot of hemp (*Cannabis sativa* L.) caused by *Fusarium solani* (Mart.) Sacc. in North Dakota, USA. Plant Disease. 107 (1): 232. <https://doi.org/10.1094/pdis-12-21-2681-pdn>
- 17. Khan, M. F. R., Bhuiyan, M. Z. R.,** Lakshman, D., Mosher, P., Cymbaluk, T. and Peters, D. 2021. Morphological and molecular characterization of *Sclerotinia sclerotiorum* on sugar beet in Montana, USA. Plant Health Progress. 22(4). [doi.org/10.1094/PHP-11-21-0137-BR](https://doi.org/10.1094/PHP-11-21-0137-BR)
- 18. Khan, M. F. R., Yangxi, L., Bhuiyan, M. Z. R.,** Lakshman, D., Zhaohui, L., Zhong, S. 2021. First Report of *Fusarium equiseti* causing seedling death on sugar beet in Minnesota, U.S.A. Plant Disease. [doi.org/10.1094/PDIS-10-20-2102-PDN](https://doi.org/10.1094/PDIS-10-20-2102-PDN) 3359951
- 19. Khan, M. F. R., Haque, M. E., Hakk, P., Bhuiyan, M. Z. R.,** Liu, Y., Johnson, J., Peters, D. 2021. First report of *Pythium ultimum* causing damping-off of sugar beet (*Beta vulgaris*) in Montana, U.S.A. Plant Disease. [doi.org/10.1094/PDIS-10-20-2108-PDN](https://doi.org/10.1094/PDIS-10-20-2108-PDN) 33225812
- 20. Khan, M. F. R., Bhuiyan, M. Z. R.,** Liu, Y., Lakshman, D. and Bloomquist, M. 2020. First report of leaf blight of sugar beet (*Beta vulgaris* L.) caused by *Sclerotinia sclerotiorum* in Minnesota, U.S.A. Plant Health Progress. 22:149-150.
- 21. Yangxi, L., Qi, A., Haque., M. E., Bhuiyan, M. Z. R.,** Khan, M. F. R. 2020. Combining penthiopyrad with azoxystrobin is an effective alternative to control seedling damping-off caused by *Rhizoctonia solani* on sugar beet. Crop Protection. 139: 105374
- 22. Khan, M. F. R., Bhuiyan, M. Z. R.,** Chittam, K., Shahoveisi, F., Haque, M. E., Yangxi, L., Hakk, P., Solanki, S., Luis del Rio Mendoza, and LaPlante, G. 2019. First report of *Sclerotinia sclerotiorum* causing leaf blight in sugar beet (*Beta vulgaris* L.) in North Dakota, USA. Plant Disease.104(4):1258.

23. Khan, M. F. R., Haque, M. E., Bloomquist, M., Bhuiyan, M. Z. R., Brueggeman, R., Zhong, S., Poudel, R. S., Gross, T., Hakk, P. Leng, Y. and Liu. Y. 2019. First report of *Alternaria* leaf spot caused by *Alternaria tenuissima* on sugar beet (*Beta vulgaris* L.) in Minnesota, USA. *Plant Disease*. 104(2): 580.

24. Khan, M. F. R., Haque, M. E., Brueggeman, R., Zhong, S., **Bhuiyan, M. Z. R.** Poudel, R. S., Gross, T., Hakk, P. and Liu. Y. 2019. First report of *Geotrichum candidum* causing postharvest rot of sugar beet (*Beta vulgaris*) roots in Minnesota and North Dakota. *Plant Disease*. 103(12):3278.

#### **In preparation, under review with intended journals**

1. **Bhuiyan, M. Z. R.** Lakshman, D., Ismaiel, A. and Khan. M. F. R. 2025. Identification and characterization of *Allophoma zantedeschiae* causing root rot in sugar beet in Wyoming, USA. *Canadian Journal of Plant Pathology* (**under review**).

2. **Bhuiyan, M. Z. R.**, Sultana, N., Islam, M. J., Akter, M., Alam, F. and Miah, M. A. 2025. First Report of Damping off Seedling in Bottle Gourd caused by *Rhizoctonia solani* AG 2-2IIIB in Bangladesh. *Journal of Plant Pathology* (**under review**).

3. **Bhuiyan, M. Z. R.** Akter, M., Lakshman, D. K., Sultana, N., Miah, M. A., Alam, M. F. 2025. Identification and characterization of *Alternaria alternata* causing leaf blight in carrot in Bangladesh. *Plant Disease*.

4. **Bhuiyan, M. Z. R.**, Akter M., Sultana, N., Islam, M. J. 2025. Identification and characterization of *Pseudoperonospora cubensis* causing downy mildew in squash (*Cucurbita pepo* L.) in Bangladesh. *European Journal of Plant Pathology*.

5. **Bhuiyan, M. Z. R.**, Akter M., Sultana, N., Islam. 2025. Molecular identification and characterization of novel fungal and bacterial pathogens of postharvest sweetpotatoes in Bangladesh. *Plant Health Progress*.

#### **Teaching Experiences**

##### **Undergraduate and Graduate teaching**

**PPTH 324**-Introductory Plant Pathology, NDSU, USA

**Courses (Undergraduate): Sher-e-Bangla Agricultural University**

**PLPA 206**-Introduction to Plant Pathology and Microbiology

**PLPA 353**-Principles of Plant Pathology and Seed Pathology

**PLPA 457**-Diseases of Horticultural Crops and Postharvest Pathology

**PLPA 325**-Crop Protection Strategy-II

##### **MS Courses**

**PLPA 503**-Epidemiology and Plant Disease Dynamics

**PLPA 501**-Mycology

**PLPA 509**-Phytobacteriology

**PLPA 505**-Clinical Plant Pathology

**PLPA 506**- Molecular Biology of Host Pathogen Interaction

#### **Awards and Honors**

Doctoral Dissertation Award-NDSU 2022

Neil C. Gudmestad Fellowship-NDSU Plant Pathology 2022

APS North Central Division Student Travel Award 2022

Graduate Student Council Research Award- NDSU 2022

Alan G. Dexter Scholarship Award for Sugar beet Research, SREB 2021

H. Arthur Lamey Plant Pathology Graduate Student Scholarship, NDSU 2020

Ministry of Science and Technology-MS Research Fellowship-Bangladesh 2010

Dean's Award- Faculty of Agriculture, Sher-e-Bangla Agricultural University, Bangladesh 2010

## Leadership

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Member, Postdoctoral Association, NC State University	2023
Vice President, Gamma Sigma Delta, North Dakota Chapter	2022
Senate of Student Government, NDSU	2021
President, Plant Pathology Organization, NDSU	2021
Congress of Student Organization (CSO), NDSU	2021
Treasure, Plant Pathology Student Organization (SPPO), NDSU	2020
President, Bangladeshi Student Organization (BSO), NDSU	2020

## Service

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Reviewer of Plant Disease Notes, American Phytopathological Society	2019 -Present
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## Workshop and Training

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Real-time PCR and Flow Cytometry, Center for Protease Research, NDSU	2018
Quantifying Epidemiology and Forecasting Risk of Crop Diseases. ICARDA	2013
10 <sup>th</sup> Foundation Training for University Teachers. Bangladesh	2013
Curriculum Development and Teaching-Learning Assessment	2013
Teaching Methods and Techniques	2013
Operation and Maintenance of Laboratory Equipment	2012

## Professional Membership

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American Phytopathological Society	2020 -present
Gamma Sigma Delta, ND Chapter	2020 -present
Krishibid Institution of Bangladesh-KIB	2020 -present
Sher-e-Bangla Agricultural University Alumni Association, Bangladesh	2020 -present

## Grantsmanship

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(Research project accepted and accomplished)	
A Study on Required Testing Methods for Exporting Fruits from Bangladesh	2024 to 2025
Morphogenetic diversity analyses of <i>R. solani</i> in vegetable crops in Bangladesh	2024 to 2025
Morphogenetic diversity analyses of <i>Rhizoctonia solani</i> in sugar beet in the USA	2021 to 2022
Characterization of <i>Sclerotinia sclerotiorum</i> in sugar beet using ISSR primer	2021 to 2022
Chemical control of citrus canker, Ministry of Science and Technology, Bangladesh	2014 to 2015
Eco-friendly management of rice diseases, Ministry of Science and Technology	2014 to 2015
Survey and management of seed borne diseases of vegetable, SAURES	2013 to 2014

## Scientific Meeting (Oral Presentation) (9)

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1. **M. Z. R. Bhuiyan** and M. F. R. Khan. 2023. Survey, identification, and characterization of storage pathogens of sugar beet in the Red River Valley of North Dakota and Minnesota. 53<sup>rd</sup> Annual Sugar beet Research Reporting Session. January 10, 2023. <https://www.sbreb.org/>
  2. **M. Z. R. Bhuiyan**, Luis E. del Río Mendoza, Dilip K. Lakshman, Aiming Qi and M. F. R. Khan. 2022. Effect of incubation temperature on severity of Sclerotinia leaf blight of sugar beet. APS North Central Division Meeting, Lincoln, Nebraska.
  3. M. F. R. Khan and **M. Z. R. Bhuiyan**. 2022. SDHI-fungicides have the potential to reduce storage rot in sugar beet caused by *Botrytis cinerea* in USA. 16<sup>th</sup> Congress of the Mediterranean Phytopathological Union. 4-8 April 2022. Limassol, Cyprus.
  4. **M. Z. R. Bhuiyan**, Luis E. del Río Mendoza, Dilip K. Lakshman, Aiming Qi, M. F. R. Khan. 2022. Effect of inoculum density of *Rhizoctonia solani* AG 2-2 IIIB and plant age to resistance response of Sugar beet. APS Plant Health. Pittsburgh, Pennsylvania, USA.

5. **M. Z. R. Bhuiyan** and Khan, M. F. R. 2022. Role adjuvants for improving the effectiveness of different modes of action of fungicides for controlling *Cercospora* leaf spot of Sugar beet. 52<sup>nd</sup> Annual Sugar beet Research Reporting Session. January 11, 2022. <https://www.sbreb.org/>

6. **M. Z. R. Bhuiyan** and Khan, M. F. R. 2021. Role of adjuvants to improve the efficacy of fungicides under simulated rainfall condition for controlling *Cercospora* leaf spot of Sugar beet. 51<sup>st</sup> Annual Sugar beet Research Reporting Session. January 10, 2021. <https://www.sbreb.org/>

7. **M. Z. R. Bhuiyan** and Khan, M. F. R. 2020. Effect of adjuvants mixed with fungicides for controlling *Cercospora* leaf spot of Sugar beet. 50<sup>th</sup> Annual Sugar beet Research Reporting Session. January 14, 2020. Holiday Inn, Fargo, ND. <https://www.sbreb.org/>

8. **M. Z. R. Bhuiyan** and Khan, M. F. R., Haque, Md Ehsanul and Liu, Yangxi. 2019. *Alternaria alternata* is becoming an emerging problem of Sugar beet. 49<sup>th</sup> Annual Sugar beet Research Reporting Session. January 8, 2019. Holiday Inn, Fargo, ND. <https://www.sbreb.org/>

9. **M. Z. R. Bhuiyan**, Shyam Solanki, Gazala Ameen, Robert S. Brueggeman, Pawel Borowicz, M. F. R. Khan. 2020. Proliferation success of *Cercospora beticola* on sugar beet is associated with an early penetration and nutrient acquisition. Journal of American Society of Sugar Beet Technology.

#### **Conference Poster (12):**

1. **M. Z. R. Bhuiyan**, Kimberly D'Arcangelo and L. M. Quesada-Ocampo. 2023. Populations of *Pseudoperonospora cubensis* Causing Downy Mildew in Squash and Cucumbers are Structured by Host Genotype. APS Plant Health. August 12-16, Denver, Colorado, USA.

2. **M. Z. R. Bhuiyan**, Dilip K. Lakshman, Luis E. del Río Mendoza, Aiming Qi and M. F. R. Khan. 2022. Identification and characterization of *Alternaria* spp. in sugar beet in the USA. NDSU Extension and REC Fall Conference. November 1-3, Holiday Inn-West Acres, North Dakota, USA.

3. Sunil Bhandari, Ravi Kiran Yellavajjala, Luis E. del Río Mendoza, **M. Z. R. Bhuiyan** and M. F. R. Khan. 2022. Multispectral image analysis techniques for detection and quantification of *Cercospora* Leaf Spot (CLS) in sugar beet. NDSU Extension and REC Fall Conference. November 1-3, Holiday Inn-West Acres, North Dakota, USA.

4. **M. Z. R. Bhuiyan**, Luis E. del Río Mendoza, Dilip K. Lakshman, Aiming Qi and M. F. R. Khan. 2022. *In vitro* evaluation of sensitivity of *Sclerotinia sclerotiorum* to fungicides commonly used on sugar beet in North Dakota. APS North Central Division Meeting, Lincoln, Nebraska.

5. Sunil Bhandari, **M. Z. R. Bhuiyan**, Luis E. del Río Mendoza, Ravi Kiron, Dilip K. Lakshman, and M. F. R. Khan. 2022. Early detection and quantification of *Cercospora* Leaf Spot disease in sugar beet. APS North Central Division Meeting, Lincoln, Nebraska, USA.

6. **M. Z. R. Bhuiyan**, Dilip K. Lakshman, Luis E. del Río Mendoza, Aiming Qi, M. F. R. Khan. 2022. *Sclerotinia sclerotiorum* in Sugar beet: Identification, pathogenicity, and sensitivity to fungicides. Annual meeting, North Dakota Academy of Science, USA.

7. **M. Z. R. Bhuiyan**, Luis E. del Río Mendoza, Dilip K. Lakshman, Aiming Qi, M. F. R. Khan. 2022. Efficacy of fungicides for controlling *Sclerotinia* leaf blight (*Sclerotinia sclerotiorum*) in Sugar beet. APS Plant Health. Pittsburgh, Pennsylvania, USA.

8. **M. Z. R. Bhuiyan**, Shyam Solanki, Gazala Ameen, Robert S. Brueggeman, Pawel Borowicz, M. F. R. Khan. 2021. Understanding the infection mechanism of *Cercospora beticola* of sugar beet using advanced staining technique and confocal laser scanning microscopy. APS Plant Health, Aug 4-5.

9. **M. Z. R. Bhuiyan**, Aiming Qi, Dilip Lakshman, and M. F. R. Khan. 2021. A good inoculation method to be used in the disease assay of *Rhizoctonia solani* in sugar beet. APS Plant Health, Aug 4-5.

10. M. E. Haque, M. F. R. Khan, **M. Z. R. Bhuiyan**, R. S. Brueggeman, Z. Liu, S. Zhong, T. Gross, P. Hakk, J. D. Eide. 2019. Pathogenesis study of *Rhizoctonia solani*, sclerotia in Sugar beet. APS Annual Meeting Plant Health, 3-7 August 2019. Cleveland, Ohio, USA.

11. M. E. Haque, M. F. R. Khan, **M. Z. R. Bhuiyan**, Robert S. Brueggeman, Zhaohui Liu, Shaobin Zhong, Thomas Gross, Peter Hakk and John D. Eide. 2019. Morphological and Genomic Diversities of *Rhizoctonia solani* on Sugar beet in the USA. APS Annual Meeting Plant Health, 3-7 August 2019. Cleveland, Ohio, USA.
12. M. F. R. Khan, M. E. Haque, and **M. Z. R. Bhuiyan**. 2018. Aphanomyces root rot contributed to significant sugar beet yield loss in 2018 in Southern Minnesota. December 4-6, 2018; Islamorada, Florida, USA.

## References

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1. Mohamed F. R. Khan PhD  
Professor  
Department of Plant Pathology  
North Dakota State University  
Fargo, ND 58102, USA  
E-mail: mohamed.khan@ndsu.edu  
Cell: 218-790-8596
2. Luis del Rio Mendoza PhD  
Professor, Canola Diseases  
Department of Plant Pathology  
North Dakota State University  
Fargo, ND 58102, USA  
E-mail: luis.delriomendoza@ndsu.edu  
Cell: 701-364-5469