

Dr. Md. Zakaria Ibne Baki

Senior Scientific Officer, Agronomy Division
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A highly motivated self-starter and detail-oriented soil scientist with exceptional knowledge in agricultural studies. Proven hands-on experience in field research, and expert knowledge and technical skills in soil and plant analysis. An organized strong team collaborator with a strong work ethic, solid publication record, mentorship experience of graduate and undergraduate students, and excellent presentation and communication skills to simplify complex information to both technical and non-technical audiences.

RESEARCH INTERESTS

- Field crop research
- Soil nutrient management
- Plant growth and development
- Plant-root microbiome
- Soil microbial ecology
- Bioinformatics
- Precision agriculture
- Environmental sustainability

KEY SKILLS AND COMPETENCIES

- DNA extraction
- Polymerase Chain Reaction (PCR)
- Agarose Gel Electrophoresis
- DNA library preparation
- High Throughput Sequencing (Illumina MiSeq)
- Sequence data analysis
- Data processing and statistical analysis (Qiime2, R, MS Excel)
- Conduct field experiment
- Bioinformatics
- Plant analysis
- Proven track record of research excellence
- Soil physicochemical analyses
- Report writing and manuscript preparation
- Interpersonal skills
- Critical thinking
- Teamwork

RESEARCH EXPERIENCE

Senior Scientific Officer (July 2019- to date)

Ongoing research activities

- Molecular characterization of Arbuscular Mycorrhizal fungal community composition associated with different stages of hilly rice in Bangladesh.
- Changes in soil microbial community and activity caused by the application of Bispyribac Sodium and Bensulfuran methyl + acetochlor.
- Precision Agriculture management techniques for sustainable rice production.

Doctoral Fellow (10/2018 – 03/2022)

Niigata University, Niigata, Japan

Molecular Ecology of Arbuscular Mycorrhizal Fungi: Case Studies in Upland Rice and Asiatic Sand Sedge.

- Conducted experiments to characterize the Arbuscular Mycorrhizal Fungal community composition in different ecology by high throughput sequencing.
- Experimented with the impact of the chemical composition of applied organic materials on bacterial and archaeal community compositions in paddy soil.
- Developed a suitable fungal hyphae extraction method from soil that can represent the active fungal group.
- Performed DNA extraction and PCR amplification of the 16s, 18s, and ITS rRNA gene.
- Performed next-generation sequencing of amplicons on the Illumina MiSeq platform.
- Conducted soil and plant chemical analyses.
- Data processing and analysis.
- Authorship/co-authorship of peer review manuscripts for publication.

On Service (July 2013- To date)

- Conducted more than 30 experiments as Principal investigator and co-investigator
- Field and lab experiments based on national demand.

PROFESSIONAL EXPERIENCES

Position	Organization	Period		
		From	To	Total Yr/Mo.
Scientific officer	Bangladesh Rice Research Institute, Bangladesh	July 2013	July 2019	6 years
Senior Scientific officer	Bangladesh Rice Research Institute, Bangladesh	July 2019	To date	-

ACADEMIC QUALIFICATION**Doctor of Philosophy (Ph.D.) in Agriculture (Applied Life Sciences)**

Niigata University, Niigata, Japan (March 2022)

Master of Science (Soil Science)

Bangladesh Agricultural University, Mymensingh, (June 2014)

Bachelor of Science (Honours in Agriculture)

Bangladesh Agricultural University, Mymensingh, (December 2012)

TRAINING

Organization	Year	Duration (Days)	Name of the training program
Graduate Training Institute, Mymensingh	2013	15	Basics of MS Office
Bangladesh Agricultural Research Institute, Gazipur.	2013	04	Capacity Building Training on Agricultural Remote Sensing.
Bangladesh Rice Research Institute, Gazipur	2014	60	Two-month rice production training
National Agriculture Training Academy (NATA)	2016	03	Training in Disaster Management
Bangladesh Rice Research Institute, Gazipur	2017	05	R-programming for experimental design and data analysis.
Bangladesh Rice Research Institute, Gazipur	2017	03	Experimental design and data analysis training course.
Bangladesh Agricultural Research Council (BARC)	2023	03	IoT-based Precision Agriculture for sustainable production.

PUBLICATIONS

1. Ahmad Humayan Kabir, **Md. Zakaria Ibne Baki**, Bulbul Ahmed, Mohammad Golam Mostofa 2024. Current, faltering, and future strategies for advancing microbiome-assisted sustainable agriculture and environmental resilience. *New Crops*. 1(2024)100013.
2. **Md Zakaria Ibne Baki**, Kazuki Suzuki, Kohei Takahashi, Sharmin Akter Chowdhury, Rasit Asiloglu, Naoki Harada. 2021. Molecular genetic characterization of arbuscular mycorrhizal fungi associated with upland rice in Bangladesh. *Rhizosphere*. 18(2021) 100357.
3. Sharmin Akter Chowdhury, Aya Kaneko, **Md Zakaria Ibne Baki**, Chikako Takasugi, Natsumi Wada, Rasit Asiloglu, Naoki Harada, Kazuki Suzuki. 2022. Impact of the chemical composition of applied organic materials on bacterial and archaeal community compositions in paddy soil. *Biology and Fertility of Soils* (2022) 58:135–148.
4. Md. Mamunur Rashid, Majharul Islam, **Md. Zakaria Ibne Baki**, Md. Maksudul Haque, M. Mazibur Rahman, Abdul Kader, 2018. Decomposition Pattern of Bio-Slurry in Two Contrasting Soils of Bangladesh. *The Saudi Journal of Life Sciences (SJLS)*, 3(2): 165-175.
5. Lutfun Nahar, Rakiba Shultana, Khairul Alam Bhuiyan, **Md. Zakaria Ibne Baki** and Romana Akter, 2018. Assessment of different crop residues and herbicides on weed control efficiency in Transplanted Aman rice. *International Journal of Applied Research*, 3(3) 7-13.
6. MKA Bhuiyan, Md. Mostofa Mahbub, Lutfun Nahar, **Md. Zakaria Ibne Baki**, 2017. Effect of Nitrogen Levels and Weed Management on Yield Performance of BRRI

- Hybrid dhan3 Under AWD Irrigation System. *Bangladesh Agron. J.* 2017, 20 (1): 13 – 24.
7. **M Z I Baki**, M A Matin, M F Jubayer, T K Roy and A Wadud (2015). Effect of Depth of Tillage and Manuring on Soil Physical Properties, Water Conservation, and Yield of Aman Rice (BRRI DHAN49) in Bangladesh. *International Journal of Information Research and Review*, 2(01): 274-283.
 8. **M Z I Baki**, M A Hashem and M R Islam (2015). Effects of reduced rates of fertilizers on N, P, K, S, and Zn contents and uptakes in BRRI dhan29. *International Journal of Natural and Social Sciences*, 2(1): 66-71.
 9. **M Z I Baki**, R Khatun, A Khatun, S Akter, P Hazra and A Sultana (2015). Impact of flood hazards on human life and environment in some selected upazilas of Sirajganj district. *International Journal of Natural and Social Sciences*, 2(1): 102-106.
 10. **Md. Zakaria Ibne Baki**, Md. Abul Hashem and Md. Rafiqul Islam (2015). Effects of Reduced Rates of N, P, K, S, and Zn on the Growth and Yield of BRRI dhan29. *American-Eurasian J. Agric. & Environ. Sci.*, 15 (4): 518-522.
 11. **M. Z. I. Baki**, M.A. Matin, Ruhul Amin, Fahad Jubayer, Kaniz Farzana and Maksudul Haque (2015). Impact of Tillage Intensity, Fertilizer and Manuring on Soil Physical Properties. *Advances in Biological Research* 9 (2): 75-81.
 12. **M. Z. I. Baki**, Md. Maksudul Haque, Ruhul Amin, Dr. M. Abdul Matin (2015). Impact of tillage intensity, fertilizer, and manuring on yield contributing characters of rice. *Scientia Agriculturae*, 10 (1): 22-30.
 13. Bodrun Nessa, Moin U. Salam, A.H.M. Mahfuzul Haque, Jiban K. Biswas, M. Abdul Latif, M. Ansar Ali, Tahmid H. Ansari, Montasir Ahmed, Nargis Parvin, **M. Zakaria Ibne Baki**, Subrima Islam, M. Sirajul Islam and Jean Galloway (2015). Rice False Smut Disease at Different Flowering Times. *Bangladesh Rice J.* 19(2): 29-35.
 14. Sarmin Sultana, M. A. Hashem, T. S. Haque, **Md. Z. I. Baki**, Md. Maksudul Haque (2015). Optimization of Nitrogen Dose for Yield Maximization of BRRI dhan49. *American Journal of Biology and Life Sciences*, 3(3): 58-64.
 15. Sultana A., M.S. Hossen, M.R. Hossain, M. Mustafa, P. Hazra and **M. Z. I. Baki**, 2015. Environmental analysis of urban and peri-urban agriculture of Jessore district. *International Journal of Applied Research*, 1 (1): 16-27.

ACADEMIC CONFERENCES

1. International Conference on Biodiversity, Food Security, Sustainability and Climate Change (ICBFSCC), Assam, India (2023). Molecular genetic characterization of arbuscular mycorrhizal fungi associated with hilly rice in Bangladesh. **Md Zakaria Ibne Baki**, Kazuki Suzuki, Naoki Harada.
2. 7th International Symposium on Strategies for Sustainability in Food Production, Agriculture, and Environment (ISFAE), Niigata, Japan (2021). Factors affecting AMF community compositions associated with non-AMF host plant in saline regime by high throughput sequencing. **Md Zakaria Ibne Baki**, Kazuki Suzuki, Naoki Harada.

3. Kariwa Village Advanced Agro-Biotechnological Research Center (KAAB) International Symposium, Niigata, Japan (2021). Molecular genetic characterization of arbuscular mycorrhizal fungi associated with upland rice in Bangladesh. **Baki M. Z. I**, Suzuki K, Takahashi K, Chowdhury S. A, Asiloglu R, and Harada N.
4. 10th International Soil Congress, Ankara, Turkey (2019). Effects of nitrogen application and weed management on rice yield under AWD irrigation system. **Md Zakaria Ibne Baki**, MKA Bhuiyan, Kazuki Suzuki, Naoki Harada.

AWARDS AND HONORS

Bangladesh Rice Research Institute Research Fund One-time payment of 600,000 BDT as a research grant	2023
Bangabandhu Science and Technology Fellowship, Ministry of Science & Technology, Govt. of the People Republic of Bangladesh Ph.D. program at Niigata University, Japan (25000\$/Year)	2018-2022
National Institute of Science and Technology Fellowship, Ministry of Science & Technology, Govt. of the People Republic of Bangladesh Master's program at Bangladesh Agricultural University, Bangladesh (50000 BDT one-time)	2014

Google Scholar link:

<https://scholar.google.com/citations?hl=en&user=Y71xJPgAAAAJ>

REFEREES

Prof. HARADA Naoki Institute of Science and Technology, Niigata University, Japan. Tel/Fax: +81-25-262-6636 E-mail: naharada@agr.niigata-u.ac.jp	Dr. Ahmad Humayan Kabir Assistant Professor, School of Sciences, University of Louisiana at Monroe, Monroe, LA 71209, USA E-mail: ahkabar777@gmail.com	Dr. Md Khairul Alam Bhuiyan Principal Scientific Officer Bangladesh Rice Research Institute, Bangladesh Tel/Fax: +8801819428889 E-mail: bhuiyanbrri@gmail.com
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