Alfred Balenor Buernor

PhD Candidate
Mohammed VI Polytechnic University (UM6P)
Bengeurir 43150, Morocco
+212635258555 • abbalenor@gmail.com

Summary

A Ghanaian agriculture engineer/Consultant with expertise in sustainable production of crops, biofertilizers, and microbe-based product development. Over 4 years of experience implementing research projects on sustainable legume production. Experienced in data extraction, scientific publication, report writing, workshop organization, and facilitation. Fluent (both oral and written) in English and French, with excellent communication skills.

Education

February 2020 – Present**: Ph.D**. in **Sustainable Agricultural Systems**, Mohammed VI Polytechnic University (UM6P), Bengeurir, Morocco (*expected defense date, June 2024*)
Dissertation title: Understanding the drivers of soybean yield and rhizosphere microbiome structure in Northern Ghana.

September 2020-January 2023: **Master of Business Administration** (MBA), University of the People, Pasadena, California (*online)*
Dissertation title: A Case Study of Ventures in Salt: Compass Minerals International

September 2014 - October 2019: **Master's in Engineering** degree (**M.Eng.**) in **Genetics, Plant and Seed Production**, Institut Agronomique et Vétérinaire Hassan II**,** Rabat, Morocco
Dissertation title: Contribution to the identification of morphological descriptors for the genetic diversity of argan tree (*Argania spinosa* L. Skeels).

Experience

February 2020 – To present: Research-Assistant/PhD-candidate, UM6P, Bengeurir, Morocco

- Responsible for implementing and managing research projects in the field of Agriculture. A member of a team developing biofertilizers and microbe-based products for sustainable production in Africa.
- *Preparation of Rhizobium inoculant for soybean production*. Procurement, culturing, and preparation of peat-based rhizobium inoculant in Morocco for field trails in northern Ghana.
- *Data extraction and analysis*: Experienced in data extraction and analysis for scientific publications. Experience in the data analysis programs such as R and basics in Python.
- *Laboratory Experiences:* Isolation, culturing, characterization, and identification of plant growth-promoting rhizobacteria (PGPR). Performing laboratory activities such as microbial DNA extraction from plants and soil, plating, and isolation of microorganisms, sequencing, and identification of strains. Performing PGPR tests such as phosphorus solubilization, Auxin, siderophore production, antibiotic resistance, etc.
- *Training and workshops:* Organizing and facilitating training and workshops on research for about 100 graduate students and researchers in Morocco.
- *Metagenomics;* DNA extraction from soil and plants, sequencing, bioinformatic analysis, and publication

January- June 2023: Laboratory Experiences: University Cadi Ayyad, Marrakech, Morocco

- *Biofertilizer development*: Isolation, culturing, characterization, and identification of plant growth-promoting rhizobacteria (PGPR). Performing PGPR tests such as phosphorus solubilization, Auxin, siderophore production, antibiotic resistance, etc.

- Performing laboratory activities such as microbial DNA extraction from plants and soil, plating, and isolation of microorganisms, sequencing, and identification of strains.

June 2021-February 2022: Field Research, Council for Scientific and Industrial Research- Savana Agriculture Research Institute, Tamale, Ghana

- *Field survey on inoculant and pesticide use by smallholder farmers in Northern Ghana***.** Legume farmers were interviewed on their use of rhizobium inoculants and pesticides to identify fields suitable for indigenous rhizobia survey and isolation.
- *Rhizobium inoculation trail and community engagement*: Established demonstration plots on rhizobia inoculation and phosphate fertilizer application effect on soybeans in smallholder farmer fields in Northern Ghana.

February 2019 – October 2019: Internship, International Center for Agricultural Research in the Dry Areas (ICARDA), Rabat, Morocco

- *Breeding*: Screening of different chickpeas and durum wheat varieties for improved yield and disease resistance
- *Laboratory and field work*: Morphological and molecular characterization of Argania Spinosa for better in-situ conservation and morphological characterization of cereals (barley and durum wheat).

Scientific Publications

Peer-reviewed journals

- **Buernor, A. B**., Chaouni, B., Kabiru, M. R., Raklami, A., Akley, E. K., Madukwe, D. K., Kugbe. J., Dahhani, S., Jibrin, J. M., & Jemo, M. (2024). 16S rRNA Genes-Based Metagenomic for assessing soybean rhizosphere microbiomes in Northern Ghana. (***Under review)***

- **Buernor, A. B**., Kabiru, M. R., Chaouni, B., Akley, E. K., Raklami, A., Silatsa, F. B. T., Asante, M., Dahhani, S., Hafidi, M., Jibrin, J. M., & Jemo, M. (2024). Soybean yield variability in Northern Ghana: Effects of rhizobia inoculation, P application, and soil exchangeable Mg content. **Plant and Soil**, (**IF=4.9**) 0123456789. https://doi.org/10.1007/s11104-024-06503-2

- Jemo M, Nkenmegne S, **Buernor AB**, Raklami A, Ambang Z, Souleyamanou A, Ouhdouch Y, & Hafidi M (2023). Mycorrhizas and Trichoderma fungi increase the accumulation of secondary metabolites in grain legume leaves and suppress foliar diseases in field-grown conditions of the humid forest of Cameroon. **BMC Plant Biology**, (**IF=5.3**) 23(1), 1–15. https://doi.org/10.1186/s12870-023-04587-z

- **Buernor AB**, Kabiru MR, Bechtaoui N, Jibrin JM, Asante M, Bouraqqadi A, Dahhani S, Ouhdouch Y, Hafidi M and Jemo M (2022) Grain Legume Yield Responses to Rhizobia Inoculants and Phosphorus Supplementation Under Ghana Soils: A Meta-Synthesis. **Front. Plant Sci**. (**IF=5.6**) 13:877433. doi: 10.3389/fpls.2022.877433

- **Buernor AB**, Amri A, Birouk A, Analy C, Kehel Z (2021) Contribution to the identification of morphological descriptors for the genetic diversity of argan tree (*Argania spinosa* L. Skeels). **Glob J Ecol** 6(1): 051-061. DOI: 10.17352/gje.000044

Scientific Communications

International conferences

1. "Use of random selection and machine learning techniques to assess soybean yield variability from inputs managed on-farm trials in northern Ghana districts" The fifth edition of the international congress: "Microbial Biotechnology for development" *Laayoune, Morocco*, November 2023 **(Oral presentation)**
2. "Response of soybean [*Glycine max* (L.) Merr.] to Rhizobium inoculation and different sources of Phosphate fertilizer in Ghana." African Association of Biological Nitrogen Fixation Conference, *Dakar, Senegal*. November 2022. **(Oral presentation)**
3. "Plant growth rhizobacteria applications for plant nutrition management in Ghana" International Conference on Phosphates (ICP). *Morocco,* December 2020 (**E-Poster**)

Relevant Trainings and Workshops

- 20th – 23 February 2024: Advanced School on Tropical Agriculture, Bengeurir
- December 2023- April 2024; McKinsey Forward program
- 8th -11th May 2023: International School of Remote Sensing and Spatial Technologies, UM6P, Bengeurir, Morocco
- Morocco 5-7th June 2023: Genomic Core Facility Workshop with hands-on Environmental Microbiome, UM6P, Bengeurir, Morocco
- 9th -11th October: North Africa in The Age of Biodiversity Genomics, Rabat Morocco
- 11th-16th September 2023: Agribusiness Innovation Master class, Bengeurir, Morocco
- 30th Nov, -1st Dec 2023: Synchrotron X-ray Spectroscopy Applied to Agriculture & Materials Science,

Awards & Scholarships

2023: Best English presentation "My Thesis in 4 minutes" at the 7th Moroccan National Doctoral day held in Bengeurir, Morocco

2021: Part of the Winners of the 2021 Bio-innovation for Africa pitch Competition organized by the JR Biotek Foundation, Ghana.

2019: Valedictorian of the 2018/2019 Institut Agronomique et Vétérinaire Hassan II, Master. Eng, Genetics, Plants, and Seeds Production Program. Rabat, Morocco.

2013-2019: Recipient of the Government of Ghana- Scholarship Secretariat Award

2020-2024: University Mohamed VI Polytechnic International PhD scholarship Award.

Additional

- President and Founding member of iCoRA (International Community of Young Researchers and Innovators in Africa)
- Member of the Africa Plant Breeders Association (APBA) *No: APBA0269*

Languages and Skills

- **English:** Bilingual
- **French:** Bilingual
- **Informatics:** Good mastery of the Microsoft Office suite, RStudio, DADA2, Python, QGIS, SPSS, and Mega X.