

ABUBAKAR SADIK MUSTAFA, PhD.

CURRICULUM VITAE



A. Personal information:

Employer: Department of Plant Sciences, Microbiology and Biotechnology, College of Natural Sciences, Makerere University, P. O. Box 7062, Kampala, Uganda

Position: Lecturer

Nationality: Ugandan

Marital status: Married

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B. Education/Training:

Institution and location	Qualification	Field
Makerere University, Uganda	PhD	Microbiology and Plant Pathology Research title: ELISA-based quantification and role of callose in the development of banana <i>Xanthomonas</i> wilt disease in banana
Universiti Teknologi Malaysia, Malaysia	MSc	Biotechnology Research title: Cloning and molecular characterization of the α -globulin promoter into an expression vector.
Makerere University, Uganda	BSc	Ethnobotany Research title: The relative effect of light intensity on the antibacterial activity of <i>Ocimum gratissimum</i> .
Makerere University, Directorate of Research and Graduate Training, Uganda	Cert	Scholarly writing and communication skills
Stellenbosch University, African Doctoral Academy, South Africa	Cert	Design and Analysis of Experimental Data, Introduction to quantitative research design and methodology & Grant Writing Fundamentals
Makerere University, Uganda and Swedish University of Agricultural Sciences, Sweden	Cert	Bioinformatics and metagenomics
Makerere University, Directorate of Research and Graduate Training, Uganda	Cert	Advanced research methods & philosophy of methods
Biotech Consortium India Limited, New Delhi, India	Cert	Commercial plant tissue culture
NEPAD Agency African Biosafety Network of Expertise	Cert	International biosafety

(ABNE), Uganda		
Uganda National Council of Science and Technology, Uganda	Cert	Biosafety Inspection officer
Uganda advanced Certificate of Education	Cert	Advanced secondary education
Kenya Certificate of Primary Education	Cert	Primary education
Kenya Certificate of Secondary Education	Cert	Secondary education

C. Personal Statement

I am currently working as an assistant Lecturer at the Department of Plant Sciences, Microbiology and Biotechnology. I have diligently served Makerere University since 2013. I have been involved in teaching, supervision of students' projects, community outreach, student mentorship, research and development.

I have a PhD in Microbiology and Plant Pathology (2023, Makerere University). I hold a Master's degree in Biotechnology (2013, Universiti Teknologi Malaysia) and Bachelor's degree in Ethnobotany (2010, Makerere University).

I consider myself diverse, committed and passionate about research, presently participating in several research projects, 1) Mechanisms of defense of banana against *Xanthomonas campestris* pv. *musacearum*, 2) Surveillance of the Potato Cyst Nematode, a deadly pest of potato in Uganda, 3) Development of a microbial-based product for remediation of oil-contaminated soils in Uganda, 4) Willingness to use genetically modified food crops: case study of communities in Uganda, 5) Unravelling the status of hidden hunger among pregnant and breastfeeding women in Busoga region, Eastern Uganda, and 6) Knowledge, attitudes and conservation of commonly traded medicinal plants in a climate changing environment in Eastern Uganda.. Though diverse in research areas with the different research collaborators, I have special interest and expertise in industrial biotechnology and agricultural biotechnology. This entails the use of molecular techniques in solving agricultural and industrial challenges, both biotic and abiotic factors.

I am hardworking, highly-organized, results-oriented, time-conscious, reliable, and I exercise high level of integrity in the execution of my duties. I find it easy around and amongst people due to the strong networking and interpersonal skills that I possess.

D. Leadership positions

Mar 2023 to date: **Chairperson Research Projects Committee**, Department of Plant Sciences, Microbiology and Biotechnology (PMB), College of Natural Sciences (CONAS), Makerere University.

Aug. 2018 to date: **Chairperson Field Attachment Committee**, PMB, CONAS, Makerere University.

Aug. 2017 to date: **Deputy Chairperson Laboratory, Stores and Space Committee**, PMB, CONAS, Makerere University.

E. Work experience

Position	Period	Institution/company
Lecturer	1 st Aug 2014 – To date	Makerere University, College of Natural Sciences, School of Biosciences, Department of Plant Sciences, Microbiology and Biotechnology
Part-Time Lecturer	14 th Sept 2013 - 1 st Aug 2014	Makerere University, College of Natural Sciences, School of Biosciences, Department of Plant Sciences, Microbiology and Biotechnology
Medical representative	Feb 2011 - July 2011	Roche Pharmaceuticals
	Nov 2010 - Feb 2011	Medical Access Uganda Ltd.
	Aug 2009 - Oct 2010	Mega Life sciences
Assistant researcher	Jan 2009 - Jan 2010	Green Options Herbal Company
Intern	2007	World Vision Kenya
Biology and Chemistry teacher	2005 - 2006	Shady Garden Academy, Kisumu-Kenya.

F. Publications

- Tugume, P., Mustafa, A. S., Walusansa, A., Ojelel, S., Nyachwo, E. B., Muhumuza, E., Nampeera, M., Kabbale, F. & Ssenku, J. E. (2024). Unravelling taboos and cultural beliefs associated with hidden hunger among pregnant and breast-feeding women in Buyende district Eastern Uganda. *Journal of Ethnobiology and Ethnomedicine*, 20(1), 46. doi:<https://doi.org/10.1186/s13002-024-00682-z>
- Mustafa, A. S., Ssenku, J. E., Nyachwo, E. B., Ruto, G. C., Bunani, N., Musimami, G., Maseruka, R. & Anywar, G. (2023). Assessing knowledge and willingness to use genetically modified crops in Uganda. *Agriculture & Food Security*, 12(1), 28. doi:<https://doi.org/10.1186/s40066-023-00434-4>
- Ssenku, J. E., Naziriwo, B., Kutesakwe, J., Mustafa, A. S., Kayeera, D. & Tebandeke, E. (2023). Mercury accumulation in food crops and phytoremediation potential of wild plants thriving in artisanal and small-scale gold mining areas in Uganda. *Pollutants*, 3(2), 181-196. doi:<https://doi.org/10.3390/pollutants3020014>
- Lydia, N., Basamba, T. A., Nyakoojo, C., Mustafa, A. S., Saidi, N., Mutumba, G. M. & Ssenku, J. E. (2023). Ecological distribution and genetic diversity of *Azolla* in Uganda. *BMC Plant Biology*, 23(1), 131. doi:<https://doi.org/10.1186/s12870-023-04146-6>
- Mustafa, A. S., Ssenku, J. E., Ssemanda, P., Ntambi, S., Dinesh-Kumar, S. P. & Tugume, A. K. (2022). Sandwich Enzyme-Linked Immunosorbent Assay for quantification of callose. *Methods and Protocols*, 5(4), 54. doi:<https://doi.org/10.3390/mps5040054>
- Mustafa, A. S., Tugume, B., Ssenku, J. E., Ssemanda, P., Athman, S. Y., Oryem-Origa, H., Kubiriba, J., Dinesh-Kumar, S. P. & Tugume, A. K. (2022). *Xanthomonas campestris* pv. *musacearum* bacterial infection induces organ-specific callose and hydrogen peroxide production in banana. *PhytoFrontiers™*, 2(3), 202-217. doi:<https://doi.org/10.1094/phytofr-11-21-0073-r>
- Ssenku, J. E., Walusansa, A., Oryem-Origa, H., Ssemanda, P., Ntambi, S., Omujal, F. & Mustafa, A. S. (2022). Bacterial community and chemical profiles of oil-polluted sites in

selected cities of Uganda: potential for developing a bacterial-based product for remediation of oil-polluted sites. BMC Microbiology, 22(1), 120. doi:<https://doi.org/10.1186/s12866-022-02541-x>

Mustafa, A. S., Ssenku, J. E., Nyachwo, E. B., Ruto, G. C., Bunani, N., Musimami, G., Ssenku, J. E., Nabyonga, L., Kitalikyawe, J., Ntambi, S., Aguttu, G. & Mustafa, A. S. (2021). Potential of *Azolla pinnata* R. Br. green manure for boosting soil fertility and yield of terrestrial crops in Uganda: a case study of *Eleusine coracana* (L.) Gaertn. Journal of Crop Science and Biotechnology. doi:<https://doi.org/10.1007/s12892-021-00108-2>

Mustafa, A. S. & Wagiran, A. (2013). Molecular cloning and bioinformatic analysis of endosperm specific promoter, α -Globulin (AsGlo1). Jurnal Teknologi, 64. doi:<https://doi.org/10.11113/jt.v64.2029>

G. Research grants

- i. Principal Investigator: The implication of oil exploration, extraction, and processing industry on agriculture and livelihoods of smallholder farmers in Uganda: The case of the Albertine region in Uganda, worth Ugx. 111.2 million.
- ii. Principal Investigator: Exploration and development of plant-based fungicides to curb post-harvest losses in maize, worth Ugx. 128 million.
- iii. Principal Investigator: Willingness to use genetically modified crops: Case study of communities in Uganda, worth Ugx. 99 million.
- iv. Co-Principal Investigator: Developing a microbial-based product for remediation of oil-contaminated soils in Uganda, worth Ugx. 104 million.
- v. Co-Principal Investigator: Surveillance of the Potato Cyst Nematode, a deadly pest of potato in Uganda: detection, identification and risk reduction measures, worth Ugx. 176 million.
- vi. Co-Principal Investigator: Unravelling the vulnerability and status of hidden hunger among breastfeeding and pregnant women in Buyende district, Eastern Uganda, worth Ugx. 153 million.
- vii. Co-Principal Investigator: Knowledge, attitudes and conservation of commonly traded medicinal plants in a climate changing environment in Eastern Uganda, worth Ugx. 85 million.

H. Awards and fellowships

- i. Vice Chancellor's Research Excellence Award for my exemplary contribution to the body of knowledge through scholarly publication. Awarded by the Vice Chancellor, Prof. Barnabas Nawangwe during the 75th Graduation ceremony at Makerere University on 14th January 2025.
- ii. Vice Chancellor's Teacher of the Year Award for my outstanding dedication, passion, and excellence in teaching at Makerere University. Awarded by the Vice Chancellor, Prof. Barnabas Nawangwe during the 75th Graduation ceremony at Makerere University on 14th January 2025.
- iii. Islamic Development Bank (IsDB) scholarship that fully covered my MSc. in Biotechnology studies at Universiti Teknologi Malaysia, Malaysia, 2011-2013.

- iv. Bill and Melinda Gates Foundation grant (Investment ID: INV-009894) that fully covered the research component of my PhD in Plant Pathology and Microbiology studies, Makerere University, Uganda, 2016-2020.
- v. Makerere University that fully covered the tuition fees for my PhD in Microbiology and Plant Pathology studies, Makerere University, Uganda, 2017-2021.
- vi. Early Doctoral Programme (EDP) Scholarship, African Doctoral Academy (ADA) at Stellenbosch University that fully funded my training at the ADA Winter School on i) Design and analysis of experimental data, ii) Introduction to quantitative research design and methodology, and iii) Grant Writing Fundamentals, Stellenbosch University, South Africa, 2019.
- vii. American Phytopathological Society Award under the PhytoFrontiers™ Journals for Best Student Paper Award 2022, titled “*Xanthomonas campestris* pv. *musacearum* bacterial infection induces organ-specific callose and hydrogen peroxide production in banana (<https://doi.org/10.1094/phytofr-11-21-0073-r>).

I. Membership to professional bodies

- i. Uganda National Council for Science and Technology (UNSCT)
- ii. Uganda Biotechnology and Biosafety Consortium (UBBC)
- iii. Makerere University Biotechnology Society (MUBIS)
- iv. Biology Society of Uganda

J. Conferences attended

15th Congress of the International society of Ethnobiology, Makerere University, 2016.

K. Community service

- i. Participation in charity works at the Uganda Muslim Supreme Council (UMSC) and Makerere University Mosque
- ii. Management Committee Member, Masjid Shariff, Mbale
- iii. Review of manuscripts for peer-reviewed journals
- iv. Review of grant applications under the National Research and Innovation Funds.

L. Research supervision and mentorship

No.	Name	Registration number	Title of research
1.	Arnold Katungisa, PhD in Botany	2022/HD13/23317U	Uncovering the physiological impact of heat shock proteins (HSPs) in oxidative stress quenching and thermal acclimation for climate resilience in Ugandan coffee germplasm
2.	Kalungi Frank, Master of Science in Biochemistry	2023/HD13/18770U	Establishing a CRISPR/CAS9 genome editing system in the east african highland banana
3.	Nangozi Lilian, Master of Science in Botany	2013/HD13/91U	The effect of polyethylene glycol-6000 and abscisic acid on somatic embryogenesis of selected east african highland banana cultivars

4.	Amumpaire Doreen, Master of Science in Botany	2023/HD13/27857U	Optimization of a protoplast isolation, transfection, and regeneration system for the east african highland banana hybrid NAROBAN 5
5.	Muhumuza Robert, Master of Science in Botany	2023/HD13/2568U	Comparative analysis of energy production from selected food wastes, wood fuel and perception towards biogas utilisation in Mbarara city in Uganda
6.	Nabakka Joseline, Bachelor of Science in Biotechnology	22/U/6462	Investigating the effects of different drying methods on iron, betalains and vitamin C content of beetroot.
7.	Igiraneza Faith Lillian, Bachelor of Science in Biotechnology	21/U/07127/PS	Assessing the antibacterial activity of bioactive compounds of Nakitembe and Mbwarzirume leaves, pseudostems and corms against <i>Escherichia coli</i>
8.	Prudence Acen Ilan, Bachelor of Science in Biotechnology	21/U/11457/PS	Assessing the antibacterial activity of Zinc- oxide nanoparticles from <i>Aloe barbadensis</i> on Penicillin and Cabapenem resistant bacteria, <i>Klebsiella pneumoniae</i> .
9.	Nalwali Swabrah Kalumba, Bachelor of Science in Biotechnology	21/U/12816/PS	Evaluating the bio-pesticidal potential of <i>Psorospermum febrifugum</i> on rice weevils (<i>Sitophilus oryzae</i>) in the management of post-harvest loss
10.	Muhumuza Emmanuel, Bachelor of Science in Biotechnology	18/U/9352/PS	Assessing the impact of market practices and organization in Kampala on E. coli and V. cholerae contamination levels of tomatoes
11.	Nangobi Joanita, Bachelor of Science in Biotechnology	18/U/9371/PS	Efficiency of molecular approach in diagnosis of sorghum anthracnose disease
12.	Namuli Shakirah, Bachelor of Science in Biotechnology	20/U/11875/PS	Vitamin composition of vegetables commonly consumed by pregnant and breastfeeding women in Buyende district, Eastern Uganda

REFEREES

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