


DR. ELIUD NALIANYA WAFULA, PHD

Personal information

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Career Goal

To be a leader in research and innovation in the field of Natural Sciences in order to improve the quality of human life

Education Background

04.2014-09.2017	Postgraduate studies <i>Doctor of Natural Sciences (Dr. rer.nat.)</i> , Faculty of Mathematics, Informatics and Natural Sciences, Department of Food Chemistry, University of Hamburg, Hamburg, Germany Specialization: Microbiology, Molecular Biology and Biotechnology Overall grade: Magna Cum Laude (Very Good) Title of thesis: Effects of postharvest-processing technologies on the safety and quality of African indigenous leafy vegetables
09.2009-06.2013	Graduate studies <i>Master of Science in Genetics</i> , Department of Botany, Jomo Kenyatta University of Agriculture and Technology, Kenya Title of thesis: Analyses of soil bacteria in Ngere tea catchment area of Murang'a County, Kenya
04.2004-07.2008	Undergraduate studies <i>Bachelor of Science in Medical Microbiology</i> , Department of Botany, Jomo Kenyatta University of Agriculture and Technology, Kenya Grade: Upper Second-Class Honours

- 1998 – 2001 *Title of project:* Phytochemical screening and antimicrobial assay of crude extracts from *Dalbergia melanoxylon* (African Blackwood)
Kenya Certificate of Secondary Education (KCSE), Bungoma High School.
- 1989 – 1997 **Kenya Certificate of Primary Education (KCPE), Yalusi Primary School**

Employment History and Work Experience

02. 2021 to date **Lecturer, in the School of Pure and Applied Sciences, Department of Physical and Biological Sciences, Bomet University College, Bomet, Kenya**
- 09.2019 to 02.2021 **Part-time Lecturer, Institute of Food Bioresources Technology, Dedan Kimathi University of Technology, Nyeri, Kenya**
- 05.2019 to 02.2021 **Part-time Lecturer, Schools of Biological Sciences & Nursing, University of Embu, Embu, Kenya**
- 01.2019 to 12.2020 **Part-time Lecturer, Department of Pure and Applied Sciences, Technical University of Mombasa, Mombasa, Kenya**
- 02.2018 to 12.2020 **Part-time Lecturer, Departments of Food Science and Technology and Botany, and School of Biomedical Sciences, Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya**
- 04.2014 to 09.2017 **Graduate Research Fellow at the University of Hamburg, Hamburg, Germany, Department of Food Chemistry and Max Rubner Institute, Department of Food Safety and Nutrition, Karlsruhe, Germany**
- 09.2013-03.2014 **Part-time Lecturer, Department of Chemical and Processing Engineering, Technical University of Kenya, Nairobi, Kenya**
- 09.2009-05.2012 **Research Student (Master) at the Jomo Kenyatta University of Agriculture and Technology-Nairobi, Kenya in the Departments of Botany and Biochemistry**

Awards and Fellowships

- 08.2019-09.2021 International Foundation for Science (IFS) research Grants (Grant no. I13_E_037623). Using Natural lactic acid bacteria to improve nutrition, safety, and quality of African indigenous leafy vegetables. Funded by **International Foundation for Science, IFS Stockholm, Sweden**
- 06.2019-06.2020 AFRICA-ai-JAPAN Project Innovation Research Grants (JFY 2019/2020). Towards enhancing food security through innovative biotransformation and value addition of major locally available biological resources: Multidisciplinary Research Grant, funded by **Japan International Cooperation Agency (JICA)**.
- 04.2014-09.2017 Horticultural Innovation and Learning for Improved Nutrition and Livelihood in East Africa (project no. FKZ 031A248I). An interdisciplinary project between Jomo Kenyatta University of Agriculture and Technology, University of Hamburg

and Max Rubner Institute, Germany to study a Ph.D. Degree programme. Funded by **German Federal Ministry of Education and Research and Federal Ministry of Economic Corporation and Development**

Publications

- 1) Kiama, C. W., Njire, M. M., Kambura, A. K., Mugweru, J. N., Matiru, V. N., **Wafula Eliud Nalianya**, Kagali, R. N., & Kuja, J. O. (2021). Prokaryotic diversity and composition within equatorial lakes Olbolosat and Oloiden in Kenya (Africa). *Current Research in Microbial Sciences*, 2, 100066.
- 2) Ibinabo, T. I., **Wafula Eliud Nalianya**., Kuja, J., & Mathara, J. M. (2021). Phenotypic and genotypic characterization of lactic acid bacteria isolated from spontaneously fermented vegetable amaranth. *African Journal of Food Science*, 15(5), 243–261.
- 3) Maina, J., Maina Mathara, J., M. Kikuvi, G., **Wafula N. Eliud** (2021). Antimicrobial Activity and Characteristics of Bacteriocin Producing *Bacillus subtilis* against Mastitis Pathogens. *American Journal of Food Science and Technology*. 9, 20–29.
- 4) Maina, J., Maina Mathara, J., M. Kikuvi, G., **Wafula N. Eliud** (2021). Isolation and Identification of Bacteriocin-Producing *Bacillus* spp from *Rastrineobola argentea* (Omena) with Activity against Bovine Mastitis Bacterial Pathogens. *Journal of Food Security*. 9, 62–75.
- 5) Stoll, D. A., **Wafula N. Eliud**, Mathara, J. M., Trierweiler, B., Kulling, S. E., & Huch, M. (2021). Fermentation of African Nightshade Leaves with Lactic Acid Bacterial Starter Cultures. *International Journal of Food Microbiology*, 342, 109056.
- 6) Kiama, Catherine Wachera, Mucugi, M. N., Kambura, A. K., Matiru, V. N., Mugweru, J. N., & **Eliud N. Wafula** (2021). isolation and characterization of bacteria from lakes Olbolosat and Oloiden, Kenya. *African Journal of Microbiology Research*, 15(1), 1–19
- 7) **Wafula Eliud Nalianya and** Sylvia I. Murunga (2020). Isolation and Identification of Phosphate Solubilizing and Nitrogen-Fixing Bacteria from Lake Ol’Bolossat Sediments, Kenya. *Modern Applied Science*; Vol. 14, No. 10; 2020
- 8) Sylvia I. Murunga, **Eliud N. Wafula** and Joseph Sang (2020). The Use of Freshwater Saproel in Agricultural Production: A new Frontier in Kenya. *Advances in Agriculture, Volume 2020, Article ID 8895667, 7 pages*
- 9) **Wafula Eliud Nalianya**, Brinks, E., Becker, B., Huch, M., Trierweiler, B., Mathara J.M., Oguntoyinbo F.A., Cho, G., & Franz, C.M.A.P (2017). Draft genome sequence of *Lactobacillus fermentum* BFE 6620 isolated from fermented cassava, a potential starter culture for African vegetable foods. *Genome Announcements* 5: e00801-17.
- 10) **Wafula Eliud Nalianya** (2017): Effects of Postharvest-Processing Technologies on the Safety and Quality of African Indigenous Leafy Vegetables. PhD Dissertation, University of Hamburg
- 11) **Wafula Eliud Nalianya**, Charles C.M.P, Franz., Sascha Rohn., Melanie Huch., Julius M, Mathara., Bernhard Trierweiler (2016). Fermentation of African indigenous leafy vegetables to lower post-harvest losses, maintain quality and increase product safety. *African Journal of Horticultural Sciences* 9, 1-13.
- 12) **Wafula Eliud Nalianya**, Kinyua, J., Kariuki, D., Muigai, A., Mwirichia, R & Kosgei T.K (2015). Morphological characterization of soil bacteria in Ngere tea catchment area of Murang’a County, Kenya, *International Journal of Life Sciences Research* 3, 121-134.
- 13) **Wafula Eliud Nalianya**, Kinyua, J., Kariuki, D., Muigai, A. & Mwirichia R (2014). isolation and characterization of bacillus species from soil in Ngere tea catchment area of Murang’a County, Kenya, *International Journal of Life Sciences Research* 2, 27–35.

- 14) **Wafula Eliud Nalianya**, Kinyua, J., Kariuki, D., Muigai, A., Mwirichia, R & Kosgei T.K (2014). Molecular and Culture-Based Analyses of Soil Bacteria in Ngere Tea Catchment Area of Murang'a County, Kenya" *Science Journal of Biotechnology*, Volume 2014, Article ID sjbt-105, 10.7237/sjbt/105.
- 15) Kosgei Tom Kibet, Kinyua, J., Kariuki, D., Mamati, E., Onguso, J & **Wafula Eliud Nalianya** (2014). Occurrence of fungivorous nematodes in Ngere tea catchment area, Murang'a County, Kenya, *International Journal of Life Sciences Research* 4, 45–65.
- 16) **Wafula Eliud Nalianya** (2014). Analysis of soil bacteria in Ngere Tea catchment area of Murang'a County, Kenya. MSc. Thesis, Jomo Kenyatta University of Agriculture and Technology

Conference Presentations

- 1) **Eliud Nalianya Wafula**, Biserka Becker, Frommherz Lara, Bernhard Trierweiler, Julius M. Mathara, Charles M.A.P. Franz, Sabine E. Kulling & Melanie Huch (2021). Controlled Fermentation of African nightshade (*Solanum scarbrum*)-a comparative study on nutrient composition and reduction of food-borne pathogens. **The 3rd All Africa Postharvest Congress and Exhibition, Held on 13th-16th September 2021.**
- 2) **Eliud Nalianya Wafula**, Sylvia I. Murunga, Joseph Sang & Josiah Kuja (2021). Prokaryotic Diversity in the Sediments of Lake Ol' Bolossat as Source of Biofertilizer for Sustainable Agriculture in Kenya. **The 1st Bomet University International Conference, Held 13th to 15th July 2021.**
- 3) **Wafula Eliud Nalianya**, Frommherz, L., Trierweiler, B., Mathara, J.M., Franz, C.M.A.P., Kulling, E.S., & Huch, M. (2021). Fermentation of African nightshade with starter cultures to improve safety and quality. **The 6th Maasai Mara University International Conference, Held 28th to 30th June 2021.**
- 4) **Wafula Eliud Nalianya**, Huch, M., Dominic, S., Matthias, F., Frommherz, L., Trierweiler, B., Mathara, J.M., Franz, C.M.A.P & Kulling, E.S. (2018). Fermentation of African Leafy Vegetables by Lactic Acid Bacteria. **Globe Pan-African Conference, Sawela Lodges Naivasha, Kenya.**
- 5) Melanie Huch, Dominic Stoll, Matthias Frechen, Bernhard Trierweiler, Lara Frommherz, **Eliud Wafula**, Charles Franz, Sabine Kulling. (2017). Fermentation of African Leafy Vegetables by Lactic Acid Bacteria. **Globe Status Seminar, Berlin, Germany.**
- 6) **Wafula Eliud Nalianya**, C.M.A.P. Franz, S. Rohn, M. Huch, J. M Maina, B. Trierweiler, B. Becker (2015). Fermentation of African Leafy Vegetables to Lower Post-Harvest Losses, Maintain Quality, and Increase Product Safety. In: **Tropentag, Management of land use systems for enhanced food security: conflicts, controversies, and resolutions. Berlin, Germany.**
- 7) **Wafula Eliud Nalianya**, Becker, B., Trierweiler, B., Mathara, J. M., Franz, C. M. A. P., Kulling, E.S., & Huch, M. (2014). Investigation of the effects of postharvest processing technologies on the safety and quality of African indigenous vegetables. **HORTNILEA, Summer school conference- Kenyatta University conference center, Nairobi, Kenya.**
- 8) **Wafula Eliud Nalianya**, Kinyua, J., Kariuki, D., Muigai, A. & Mwirichia R (2012). Molecular and culture-based analyses of soil bacteria in Ngere tea catchment area of Murang'a County, Kenya. **The seventh JKUAT Scientific, Technological and Industrialization Conference at Jomo Kenyatta University of Agriculture and Technology, Kenya.**

Post Graduate Students' Supervision

- 1) **Ibinabo Tamunodiepriye Iruene MSc. PAU-JKUAT**-Characterization and Profiling of Lactic Acid Bacteria (LAB) with Probiotic Potential from Vegetable Amaranth Fermentation. **Completed July 2021.**
- 2) **Cecilia Wairimu Muigai MSc. JKUAT**- The Effects of Yoghurt Fortification on the Growth of Different Probiotic Cultures. **Ongoing since October 2019.**
- 3) **Irakoze Marie Lys MSc. Dedan Kimathi University of Technology**- Effect of Lactic Acid Fermentation on Nutritional, Microbial and Sensory Properties of African Indigenous Vegetables Consumed in Rwanda. **Ongoing since June 2020.**

Peer reviewing in refereed scientific journals

I have undertaken peer review tasks for the following published scholarly articles:

- 1) Miriam Shirley Tellez Calzada, Juan Antonio Rojas Contreras, Jesus Bernardo Paez Lerma, Nicolas Oscar Soto Cruz and Javier López Miranda. 2021. Production of truncated peptide (cellobiohydrolase Cel6A) by *Trichoderma reesei* expressed in *Escherichia coli*. *African Journal of Biotechnology* 20:(5)186-193.
- 2) Franco Molina, M A, E Mendoza Gamboa, M E Roman Calderon, P Zapata Benavides, L G Rivera Morales, L Zapata Monsivais, E E Coronado ndash Cerda, C A Sierra Rivera, R Tamez Guerra, and C Rodr iacute guez Padilla. 2016. "In Vitro Antitumoral Activity of Soluble Protein Extracts of *Bacillus Thuringiensis*." ***African Journal of Microbiology Research* 10: 324–29.**
- 3) Kitum Vivian, Peter Kinyanjui, Julius Mathaara, and Daniel Sila. 2018. "Influence of Brine Composition and Concentration on Microbial Growth Common Bean (*Phaseolus Vulgaris* L) Fermentation Using *Lactobacillus Plantarum* BFE 5092." ***Bacterial Empire* 1: 22–27.**

Memberships

April 2005 to date	American Society for Microbiology
April 2014 to date	Horticultural Association of Kenya
April 2005 to date	Kenya Society of Microbiology

Skills

- Able to work independently under minimal supervision and as part of a team.
- A fast learner who is research and result oriented.
- Ability to learn, accept advice and criticism.
- Strong interpersonal skills (ability to relate to a wide range of people).
- Ability to present facts and recommendation in a clear and concise manner.
- Knowledge and experience in Microsoft office Packages, statistical analysis in SPSS, GENSTAT, GrapPad Prism, Sigma plot, JMP and STATA. Bioinformatics analysis tools such as BioNumerics, GelJ, SeqBuilder MegAlign, Chromas pro and Mega software.

Referees

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