



Odilo Mosses Mwaka (Tanzanian), MSc in Plant Pathology, is conducting research titled "Isolation and Characterization of Potato Cyst Nematodes from Tanzania, and Their In-Vitro Management Using Biochar Extracts and Beneficial Bacteria." The study characterizes potato cyst nematode (PCN) species in Tanzania and evaluates the efficacy of sustainable, bio-based products —potato peel biochar extracts and *Bacillus amyloliquefaciens*—for PCN suppression. Soil samples from Mbeya and Iringa farms are analyzed at Moi University's Nematology laboratory. The research promotes eco-friendly, sustainable nematode management, contributes molecular and morphological data, and supports climate change mitigation by converting potato waste into biochar. Experiments and data analysis are ongoing.

Kenya track and field course by MSc Pathology students



Between 26th November and 3rd December 2025, our MSc Plant Pathology students participated in a field visit for the course Tropical Pest and Diseases, collaborating with a group of students from Ghent University, Belgium.



Visit to Pineapple and avocado farms

The course was facilitated by experts from the International Centre of Insect Physiology and Ecology (ICIPE) and the International Institute of Tropical Agriculture (IITA). The program involved extensive fieldwork, where students monitored plant disease symptoms across various agricultural fields in Kenya, and collected samples for analysis at ICIPE, enhancing practical skills in plant disease diagnostics and management.

INTERACT-AFRICA PROJECT JOINT ACTIVITIES



Signing of the Consortium agreement and Project launch, Moi University, Kenya in May 2024.



INTERACT-AFRICA PROJECT JOINT ACTIVITIES

Networking and group discussions during the Project launch, Moi University, Kenya in May 2024



Group 1: Vice Chancellors and Deputy Vice Chancellors discussion on harmonization of curricula or possibilities of credit transfers/prospects for credit seeking in future



Group 2: How to enhance visibility and sustainability of the project in future



Group 3: Adhering to quality assurance in mobility



Group 4: Learning from previous mobility projects. The do's and don'ts

Consortium Physical Meeting at Sokoine University of Agriculture (Tanzania) August 2025



r. Lenka, EU Partner from Mendel University in a discussion with INTERACT-Africa students during a Consortium physical meeting at Sokoine University of Agriculture in August 2025



Consortium partners visit Sokoine University of Agriculture (Tanzania)'s partner site where the project trainees will be hosted.

Contacts for further enquiries

Dr. Jacqueline Makatiani,
Lead Coordinator,
INTERACT-Africa Project,
Moi University (Kenya)
interact-africa2023@mu.ac.ke or
jkmakatiani@mu.ac.ke

Prof. Faith Mabiki,
Project Coordinator,
Sokoine University of Agriculture (Tanzania),
fmabiki@sua.ac.tz,
fmabiki@gmail.com

Dr. Raphael Wangalwa,
Project Coordinator,
Mbarara University of Science and Technology (Uganda),
wanganapha@must.ac.ug

Prof. Benjamin Dowiya,
Institut Facultaire Des Sciences Agronomiques De Yangambi (IFA Yangambi), (DRC),
b.nzaweledowiya@gmail.com



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MOBILITY IN INNOVATIVE GREEN TECHNOLOGIES FOR CLIMATE CHANGE MITIGATION AND SUSTAINABLE BIOECONOMY (INTERACT-Africa Project)

Mobilité dans l'innovation des Technologies Vertes pour la Réduction des Effets du Changement Climatique et la promotion de l'Economie Biologique Durable(INTERACT-Africa) - [French translation]

Mabadilishano Ya Ubinifu Wa TeknolojiaKijani, Kukabili Mabadiliko Ya Tabia Nchi Kwa Uchumi - Hai Endelevu (TETU) - [Swahili translation]

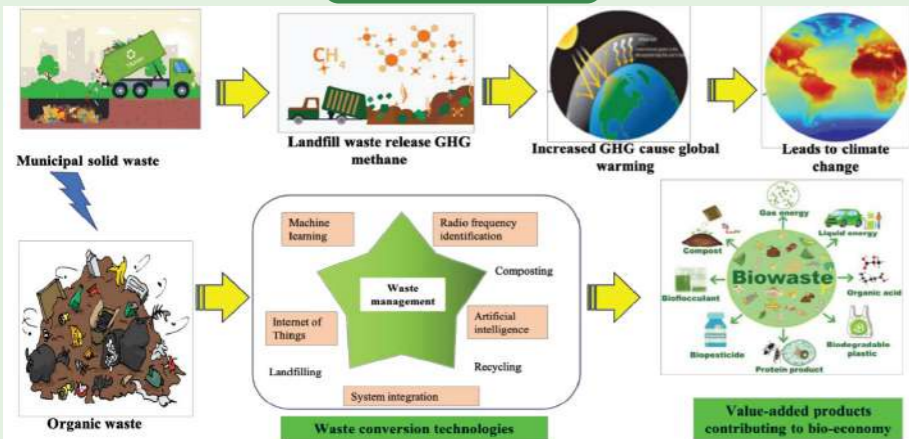
ABOUT INTERACT-Africa

INTERACT-Africa is an Intra-Africa Academic Mobility project funded by the European Union (EU). It aims to address the challenge of municipal organic waste by integrating climate change adaptation and mitigation into the curricula of partner Higher Education Institutions (HEIs) across Africa. The project will support the training of 35 MSc and 10 PhD students, while also providing development opportunities for 8 trainees and 7 staff

Project Objectives

- 1) Promote inclusive learning mobility opportunities in Chemistry, Biology and Information Technology aimed at producing highly skilled and competent workforce.
- 2) Foster green technology entrepreneurship by providing mentorship and technical support to aspiring entrepreneurs for increased employability.
- 3) Facilitate networking and knowledge sharing through provision of hands-on learning opportunities

PROJECT CONCEPT



The Consortium Composition

INTERACT-Africa Project is jointly implemented by six partner HEIs that include Moi University (Kenya, Lead Institution), Mbarara University of Science and Technology (Uganda), Sokoine University of Agriculture (Tanzania), Addis Ababa University (Ethiopia), Institut Facultaire Des Sciences Agronomiques De Yangambi (IFA-Yangambi University - Democratic Republic of Congo) and Mendel University in Brno (Czech Republic) that serves as the EU technical partner.



Mobility Distribution

Programme	Target	Achieved
MSc	35 (Tg1 19, Tg2 16)	24 (17 male, 7 female)
PhD	10 (Tg1 5, Tg2 5)	5 (2 female, 3 male)
Trainee	8 (Tg1 8)	1 male
Staff	7 (Tg1 7)	1 female
TOTAL	60	33

Mobility Programmes

PhD	Masters
PhD Analytical Chemistry	MSc Analytical Chemistry
PhD Biology	MSc Plant Pathology
PhD Agroecology	MSc Information Technology
	MSc Biology
	MSc Crop Protection

Research progress at Moi University



Philimon Dickson Nganyira (Tanzanian), a Tanzanian PhD student in Analytical Chemistry, researches the enhancement of bioethanol production from municipal fruit wastes, such as banana and pineapple peels, using green technologies. His study also investigates the valorization of post-fermentation residues into nutritionally viable poultry feed, promoting resource efficiency and a circular bioeconomy. This integrated approach supports sustainable waste management, reduces environmental pollution, and adds value to organic residues. Currently, he is in the laboratory phase, conducting substrate preparation, biochemical characterization, and fermentation studies to optimize conditions for enhanced bioethanol yield through environmentally sustainable processes.

Sample preparation for Standard calibration

I am Yikeber Getachew Dagnaw (Ethiopian), an MSc student in Analytical Chemistry, researching "Valorization of Anaerobic Digestion: Nutrient Recovery as Liquid Organic Fertilizer and Struvite from Chicken Droppings and Food Waste." This study aims to establish an efficient and sustainable green technology to transform organic waste into high-quality bioproducts, including liquid fertilizer and struvite, via anaerobic digestion. It focuses on optimizing digestion conditions for maximal nutrient recovery, utilizing solid digestate for struvite, and evaluating its potential as a sustainable alternative to synthetic fertilizers. The research promotes circular economy principles, sustainable waste management, and pollution mitigation



Organic carbon of Liquid fertilizer analysis



Gai Samuel Pandak Deng (South Sudanese), MSc in Analytical Chemistry, is conducting research titled "Development of Water-Based Drilling Mud Bio-Additive from Senna didymobotrya Leaves." The study focuses on developing sustainable, eco-friendly drilling mud from plant-based materials. The research harvests, dries, and grinds leaves into fine powder, analyzes phytochemicals (saponins, pH), and performs FTIR characterization. Cellulose is extracted, modified into carboxymethyl cellulose (CMC), and characterized via FTIR, SEM, and XRD alongside commercial CMC. Three drilling muds are formulated and evaluated for rheological and filtration properties per API standards. To date, leaf preparation, phytochemical analysis, and CMC extraction and characterization are complete, promoting green technology and sustainable drilling practices

Grinding, sieving and storage of the leaf powder



Hawanatu Kabba-Bangura, (Sierra Leone) is conducting research titled "Real-Time IoT Monitoring Prototype for Optimizing Organic Waste Composting for Climate Change Mitigation: A Case Study of the Kenya Institute of Organic Farming." The study explores using Internet of Things (IoT) technologies to optimize organic waste composting, addressing limitations of traditional practices in environmental efficiency and scalability. It develops an IoT-based sensor system to continuously monitor temperature, pH, and moisture in real-time and evaluates its effectiveness in optimizing composting. Data collection is complete, analysis, and system and sensor design are ongoing. The solution enhances digital skills, supports climate-smart agriculture, and promotes a green, sustainable economy

Innocent Nsengiyumva, (Burundian), MSc Information Technology, is conducting research titled "Optimization of Urban Waste Collection Systems Through Integration of Internet of Things (IoT) Networks in Mombasa County, Kenya". The study aims to optimize solid waste collection by leveraging IoT technologies to monitor bin fill levels in real time, enabling dynamic routing, reducing inefficiencies, and improving service responsiveness. Grounded in Zurbrugg's systems theory, it reviews current practices, identifies challenges, and proposes an intelligent framework. Data collection from 384 households, service providers, and officials is complete, and analysis is ongoing. The expected outcome is an efficient, sustainable, and cost-effective waste management system that can serve as a replicable model for other urban centres, enhancing digital skills and supporting a circular bioeconomy



Sadiq Bishir, (Nigerian), MSc student in Plant Pathology, is conducting research titled "Evaluation of Green Chitosan-Based Zinc and Iron Oxide Nanocomposites for Managing Citrus Canker Disease and Citrus Nematodes in Kenya." The study investigates the efficacy of green-synthesized chitosan-based zinc and iron oxide nanocomposites for controlling Xanthomonas citri and Tylenchulus semipenetrans on citrus. It characterizes the pathogens from Kajjado County orchards, develops nanocomposites using aqueous leaf extracts of Brassica spp. and Moringa oleifera, and evaluates their antibacterial and nematocidal properties. Pathogen isolation and characterization are complete, and nanocomposite development is underway. The study promotes green technologies and sustainable citrus farming by providing eco-friendly disease and nematode management solutions

Plant sample collection