



MAKERERE UNIVERSITY

COLLEGE OF NATURAL SCIENCES

NEWSLETTER

CONAS

April- June 2026: Issue: 2

Invest More in Graduate Training & Research to Spur Africa's Transformation – Prof. Nawangwe

Makerere Impact: Turning Food Waste into Wealth in Mbarara

Makerere-led Innovation Powers Biogas Production & Sustainable Agriculture in Western Uganda.

HIV Research: Bridging Traditional Medicine and Modern Science

**FROM
THEORETICAL
RESEARCH
TO IMPACT**

Biotech Class 2026 showcases outputs – Pg8

Word from the Principal



Our researchers continue to contribute significantly to global scientific knowledge. From groundbreaking studies on African elephant genetics and biodiversity conservation to research informing science education policy and mathematical applications for sustainable development.

It is my pleasure to present this edition of our College Newsletter, which showcases the remarkable strides we continue to make in advancing teaching, research, innovation, and community engagement in pursuit of Makerere University's mission of transforming society through knowledge.

This edition reflects a College that is continuously evolving to respond to national, regional, and global priorities. Our renewed focus on graduate training, research excellence, and innovation aligns with the University's strategic direction and underscores our conviction that scientific knowledge must generate practical solutions to the pressing challenges facing our communities.

The stories featured herein demonstrate the breadth and depth of our impact. From the ongoing review of our Geology curricula to meet the needs of Uganda's rapidly growing mineral sector, to innovative research transforming food and fish waste into clean energy, nutritious products, and sustainable livelihoods, CoNAS researchers are translating scientific discoveries into tangible societal benefits.

This issue also celebrates the ingenuity of our students and staff. The Product Development Centre within the Department of Plant Sciences, Microbiology and Biotechnology exemplifies our commitment to experiential learning by nurturing innovations that address challenges

in nutrition, health, agriculture, and industry. Likewise, the Makerere University Herbarium continues to serve as Uganda's premier centre for plant biodiversity research, conservation, and scientific training.

Our researchers continue to contribute significantly to global scientific knowledge. From groundbreaking studies on African elephant genetics and biodiversity conservation to research informing science education policy and mathematical applications for sustainable development, CoNAS remains at the forefront of generating knowledge that influences policy, strengthens ecosystems, and improves lives.

As we celebrate these achievements, we also recognize that they are made possible through collaboration. I extend my sincere appreciation to our dedicated academic and administrative staff, students, alumni, government ministries, development partners, research collaborators, industry stakeholders, and communities whose support continues to strengthen our work.

CoNAS remains committed to expanding postgraduate training, strengthening interdisciplinary research, fostering innovation and entrepreneurship, enhancing strategic partnerships, and developing the next generation of scientists equipped to address Africa's development challenges.

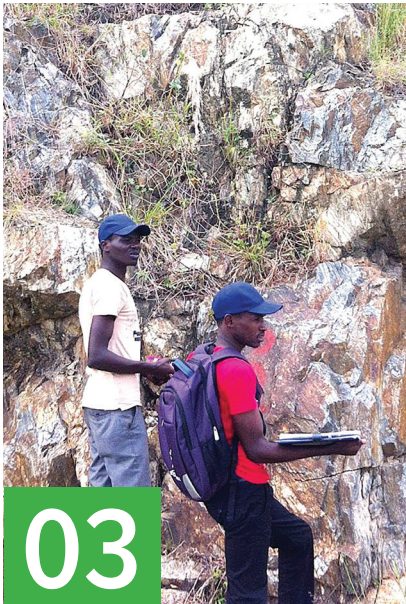
Prof. Winston Tumps Ireeta

EDITORIAL TEAM >>

**Prof. Winston Tumps Ireeta Principal, Ms. Hasifa Kabejja Principal Comm. Officer,
Mr. Kisitu David, IT Officer, Ms. Eunice Rukundo, Deputy Chief-PRO.**

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We are proud to showcase our innovative work with the Biotechnology Class of 2026. Our Product Development Centre has transitioned from theoretical research to practical, market-ready innovations.



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Mak to Revamp Geology Curriculum to Bridge Critical Skills Gap.

The revamp will equip graduates with the practical skills needed to drive the country's mining industry.

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Mak Herbarium:

Uganda's National Plant Science Powerhouse



TEACHING AND LEARNING



Some of the CoNAS staff who participated in the meeting

Invest More in Graduate Training & Research to Spur Africa's Transformation – Prof. Nawangwe

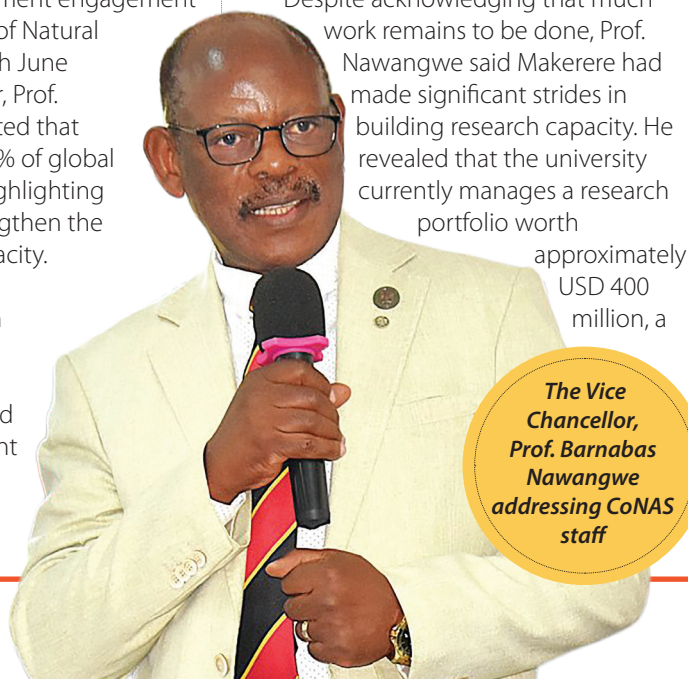
Makerere University has renewed its call for increased investment in graduate training, research, and innovation, reaffirming that higher education is central to Uganda and Africa's socio-economic transformation.

During a Senior Management engagement with staff at the College of Natural Sciences (CoNAS) on 19th June 2026, the Vice Chancellor, Prof. Barnabas Nawangwe noted that Africa contributes only 3% of global research publications, highlighting the urgent need to strengthen the continent's research capacity.

Drawing inspiration from South Korea's economic transformation, Prof. Nawangwe reemphasized how sustained investment in higher education, research, and innovation

can accelerate national development. He challenged all colleges to expand postgraduate training, increase research output, and commercialize innovations that create industries, businesses, and practical solutions for society.

Despite acknowledging that much work remains to be done, Prof. Nawangwe said Makerere had made significant strides in building research capacity. He revealed that the university currently manages a research portfolio worth approximately USD 400 million, a



The Vice Chancellor, Prof. Barnabas Nawangwe addressing CoNAS staff

“Citing the World Bank’s recommendation that Africa should produce one million PhDs by 2030, the Vice Chancellor emphasized that sustainable development will depend on the continent’s ability to train, retain, and empower its own scientists and innovators”

figure he said exceeds the national budgets of several African countries, including Burundi, Eritrea, and Comoros.

CoNAS Principal, Prof. Winston Tumps Ireeta presented the College’s achievements, including more than 150 research publications annually and significant contributions to public health, agriculture, environmental conservation, energy planning, and technological innovation. He advocated for enhanced funding for graduate students, modern research laboratories, expanded scholarships, stronger industry partnerships, and improved research support systems to further strengthen graduate education.

During the engagement, several University Managers highlighted ongoing institutional reforms aimed at enhancing graduate training. These include strengthening doctoral supervision, implementing the Research Information Management System (RIMS), introducing a PhD in Artificial Intelligence, promoting competence-based curricula, and expanding support services in academic writing, grants management, quality assurance, publishing, and innovation.

TEACHING AND LEARNING

Mak to Revamp Geology Curriculum to Bridge Critical Skills Gap

UNLOCKING UGANDA'S MINERAL POTENTIAL: *The revamp will equip graduates with the practical skills needed to drive the country's mining industry.*



Uganda's vast mineral wealth presents enormous economic potential, yet a shortage of skilled local professionals has limited the sector's growth. In response, Makerere University has launched a major curriculum reform initiative designed to equip graduates with the practical skills needed to drive the country's mining industry.

The project, titled "Strengthening Uganda's Mineral Sector through Labour-Market Aligned Curricula Reforms: A Comprehensive Review of BSc/MSc/PhD Geology Curricula and Development of Industry-Aligned Short Courses at Makerere University (Mak-SDMU)," seeks to modernize geology training by aligning academic programmes with labour market demands, emerging technologies, national development priorities and international best practices.

Implemented through the Sustainable Development of the Mineral Sector in Uganda (SDMU) programme and supported by the Governments of Germany and the European Union through GIZ, in partnership with Uganda's Ministry of Energy and Mineral Development, the initiative will comprehensively review the University's BSc, MSc and PhD Geology programmes while introducing industry-focused short courses for professionals across the mineral value chain.

The reforms come at a critical time. Although Uganda is estimated to hold US\$6.8 billion in undeveloped mineral resources, many



The Project Coordinator, Dr. Denis Mutebi briefing the team about the planned activities during the inception workshop in Kampala on 29th June 2026

mining companies continue to recruit foreign experts due to a shortage of locally trained professionals. At the same time, only 20% of Makerere geology graduates secure sector-related employment within two years, highlighting the need for stronger alignment between academic training and industry demands.

“A key feature of the reform is a stronger emphasis on hands-on training. The revised programmes will allocate 50% of learning to practical training, 20% to fieldwork and 30% to theory, ensuring graduates leave university with the technical competencies employers require”

Led by the Department of Geology and Petroleum Studies, the project will work closely with mining companies, regulators and artisanal mining associations to identify current and emerging workforce needs, benchmark programmes against international standards, and redesign curricula around competence-based learning.

A key feature of the reform is a stronger emphasis on hands-on training. The revised programmes will allocate 50% of learning to practical training, 20% to fieldwork and 30% to theory, ensuring graduates leave university with the technical competencies employers require. The PhD programme will also transition to a taught-research model to better prepare graduates for both industry and advanced research.

Beyond degree programmes, Makerere will introduce specialised short courses covering mineral processing, ore beneficiation, mineral value addition, mineral governance, and health, safety and environmental practices. The courses are expected to strengthen the skills of up to 200 professionals, including environmental officers, mineral processors and artisanal and small-scale miners.

The project will also upgrade geology laboratories to enhance practical training, research and innovation while embedding critical competencies in environmental stewardship, occupational health and safety, and mineral value addition.

Ultimately, the initiative is expected

to improve graduate employability, reduce reliance on foreign expertise, strengthen Uganda’s mining workforce and support sustainable mineral-led industrialization.

PROJECT TEAM

- 1. Dr. Denis Mutebi** – Project Coordinator
- 2. Prof. Winston Tumps Ireeta** – Compliance Lead
- 3. Dr Arthur Batte** – Data Analyst, Monitoring and Evaluation, and Quality Assurance Lead
- 4. Dr. Ivan Ssewanyaga Mukiibi** – Mining Industry Liaison and Skills Mapping Lead
- 5. Dr John Mary Kiberu** – Accreditation, Programmes, and Logistics Lead
- 6. Dr Joan Nakajigo** – Communication and Reporting Lead
- 7. Ms. Claire Birungi** – Project Accountant

TEACHING AND LEARNING

Leadership Transition at the School of Physical Sciences

Prof. Michael Owor formally handed over the office of Dean of the School of Physical Sciences to Dr. David Sseviiri on 28th May 2026. Prof. Owor served in this role for four years, beginning 1st February 2022.

Following his appointment by the University Council, Dr. Sseviiri will serve as Dean for a four-year term, effective 6th May 2026.

The handover ceremony was overseen by the Makerere University Chief

Internal Auditor, Mr. Patrick Akonyet, and witnessed by leaders from the College and the School.

On behalf of the College leadership, Prof. Juma Kasozi commended Prof. Owor for his dedicated service and leadership throughout his tenure. He also congratulated Dr. Sseviiri on his appointment and wished him success in his new role.

04

**Number of
years Prof.
Owor served
in this role**

Dr. David Sseviiri is an Associate Professor of Mathematics with extensive experience in teaching, postgraduate supervision, and research. He has played an active role in strengthening mathematics education and fostering academic collaboration in East Africa through supervision, external examining, and initiatives promoting science and technology education.



Prof. Michael Owor (L) handing over to Prof. David Sseviiri. Second left is Makerere University Chief of Internal Audit, Mr Patrick Akonyet and on the right is Prof. Juma Kasozi, Deputy Principal, CoNAS

RESEARCH AND INNOVATION

Makerere Impact: Turning Food Waste into Wealth in Mbarara

Makerere-led Innovation Powers Biogas Production & Sustainable Agriculture in Western Uganda.



MAMITA Community receiving their award of a portable biodigester system. The project team disseminated the research findings to stakeholders in Mbarara City on 15th April 2026

In Mbarara City and Isingiro District, food waste is being reimagined as a valuable resource for clean energy and sustainable agriculture. A groundbreaking initiative led by Makerere University is demonstrating how everyday organic waste can be transformed into biogas for cooking, as well as organic fertilizers and biopesticides that enhance crop production while protecting the environment.

Led by Dr. Patience Tugume from the Department of Plant Sciences, Microbiology and Biotechnology, the project, titled “Bio-innovation of biogas, biofertilizer, and biopesticide through the utilization of bio-waste”, is already reshaping community perceptions of waste. Implemented in collaboration with Frevasema Ltd and supported by UNESCO, the International Development Research Centre (IDRC), and the Organization for Women in Science for the Developing World (OWSD), the initiative has reached several communities across Mbarara City and Isingiro District since its launch in January 2024. These include Kakoba, Kamukuzi, Nyamitanga, Biharwe,

and Nyakayojo divisions in Mbarara City, as well as Masha Sub-county in Isingiro District.

A Circular Approach to Waste

At the heart of the innovation is a simple but powerful concept: banana peels, vegetable scraps, and other organic waste can be processed in bioreactor systems to produce clean cooking gas. The same process generates nutrient-rich organic fertilizers and environmentally friendly biopesticides, which early field trials suggest may improve crop yields compared to conventional chemical inputs.

Building Skills and Local Capacity

Beyond research, the project is strengthening local capacity. More than 35 students and six staff members from MAMITA Technical and Business Institute have been trained in biogas production and biodigester operation, equipping them with practical skills for green entrepreneurship. In addition, households in Mbarara and Isingiro are being trained to adopt biodigesters and more sustainable waste

management practices.

Challenges to Adoption

Despite growing awareness of biogas as a cleaner alternative to firewood and charcoal, adoption remains low at approximately 0.3%. High upfront installation costs, limited technical knowledge, and safety concerns continue to hinder wider uptake. However, the potential remains significant. Communities already generate large volumes of biodegradable waste, and improved waste segregation could substantially increase biogas output and system efficiency.

Environmental and Social Impact

With over 90% of households still relying on firewood and charcoal, this innovation presents a viable pathway to reduce deforestation, lower greenhouse gas emissions, and improve indoor air quality. Local leaders, including the Resident City Commissioner of Mbarara City, have commended the project for translating scientific research into practical solutions that directly support livelihoods and environmental sustainability.

Recommendations

To strengthen impact and scale adoption, the research team is advocating for government subsidies for biodigesters, expanded training programs, improved household waste segregation systems, and broader public awareness campaigns. They also recommend further exploration of hybrid renewable energy systems that combine biogas and solar power to enhance energy resilience.

RESEARCH AND INNOVATION

A-CCAP Project to Transform Fish waste into Climate-smart, Nutritious Products

Poor management of fish-processing waste in Uganda is contributing to environmental pollution, greenhouse gas emissions, and lost economic opportunities. Large volumes of fish by-products such as heads, bones, skin, scales, and internal organs are often dumped into water bodies or left to decompose in open spaces, degrading ecosystems, attracting pests, and releasing methane. Despite their significant nutritional and industrial potential, these by-products remain largely underutilized.

To address this challenge, the Department of Zoology, Entomology and Fisheries Sciences at Makerere University, in collaboration with the Bulindi Zonal Agricultural Research and Development Institute of the National Agricultural Research Organization and Abitech Africa Consults Limited, launched a project in April aimed at mitigating the impacts of climate change associated with fish by-products while improving nutrition and livelihoods.

The three-year project, titled Accelerating Climate Change Mitigation and Adaptation in the Fisheries Value Chain through the Transformation of Fish By-Products into Nutraceutical Products (A-CCAP), aims to develop and commercialize climate-smart products such as

gelatin, fat capsules, fish powder, and mineral concentrates derived from fish waste, targeting applications in food, cosmetics, pharmaceuticals, and animal feed. It will also introduce small-scale processing units, promote sustainable marketing systems, and support entrepreneurship among fish processors, with a focus on youth and women.

Implemented in Jinja and Buikwe districts, the project aims to collect up to 95% of inedible fish waste, establish carbon emission benchmarks, and create new income opportunities

along the value chain. Funded by NARO with support from the World Bank, the A-CCAP project is expected to improve nutrition, reduce emissions, and enhance economic resilience while promoting a circular fisheries economy in Uganda.

Representing the stakeholders, the District Fisheries Officer of Buikwe, Mr. Baligeya Kaalo Patrick, welcomed the initiative, underscoring its timely relevance as fishing communities face increasing environmental pressures and limited value addition opportunities. He emphasized that the project will help reduce fish waste and associated pollution, while also equipping local processors and traders with new skills and technologies to strengthen value addition.

The project is led by Dr. Peter Akoll (Principal Investigator), Senior Lecturer in the Department of Zoology, Entomology and Fisheries Sciences at Makerere University.



The Head of the Department of Zoology, Entomology and Fisheries Sciences, Dr. Godfrey Kubiriza Kawooya addressing the participants on the relevance of the project

RESEARCH AND INNOVATION



The Biotechnology class of 2026 showcasing some of their innovations including products for clinical hygiene, natural wellness, and advanced cosmeceuticals.

The “Dead Era” of pure theory is officially buried

By Dr. Alice Nabatanzi

At the Department of Plant Sciences, Microbiology, and Biotechnology (PMB) in the College of Natural Sciences (CoNAS), we are moving beyond the classroom to bring science to life. We are proud to showcase our innovative work with the Biotechnology Class of 2026. Our Product Development Centre has transitioned from theoretical research to practical, market-ready innovations. By applying advanced scientific principles, our students are developing tangible solutions that address everyday needs in nutrition, health, and industry.

Below are the latest products developed by our talented innovators:

- 1. Nutrition & Food Technology:** Vitamin A-rich bread, banana vinegar, food syrups, and fortified bio-snacks.
- 2. Clinical Hygiene:** Perfumes, Deodorants, Antibacterial gels, herbal toothpaste, shaving cream, and herbal mouthwash.
- 3. Natural Wellness:** Natural formulas for gut health, pain relief, cough lozenges, and nasal decongestants.
- 4. Advanced Cosmeceuticals:** Turmeric SunGuard patches, skin serums, toners, and anti-dandruff shampoo.
- 5. Home & Industrial Solutions:** Shoe deodorizing sprays, surface cleaners, and scented hygiene

RESEARCH AND INNOVATION

products.

6. **Agri-Tech:** Natural bioindicator kits designed to monitor and improve soil health.

Through these initiatives, PMB continues to lead the way in re-engineering science for the benefit of our community and the world.

What's Next: We're Just Getting Started

This is only the beginning. We're already working on the next wave of products, from eco-friendly bio-packaging and better probiotics to smart-crop tech that will change how we eat, heal, and live. We aren't just waiting for the future to happen we are in the lab building it right now.



An assortment of products made by the Biotechnology Class of 2026



Jonel perfume

RESEARCH AND INNOVATION

Mak Herbarium: Uganda's National Plant Science Powerhouse



By Dr. Mary Namaganda

A living archive of Uganda's plant biodiversity

Established in 1946, the Makerere University Herbarium (MHU) has grown into Uganda's most important botanical collection. Housed within the Department of Plant Sciences, Microbiology and Biotechnology at Makerere University, it now safeguards approximately 100,000 preserved plant specimens, documenting the country's rich floral diversity.

Over the decades, the collection has expanded through contributions from researchers, students, and major transfers from institutions such as the Forest Herbarium in Entebbe and European conservation projects. Today, MHU serves as a critical reference point for plant taxonomy, conservation, and environmental research across Uganda and beyond.

The Botanic Garden: Conservation Meets Education

Alongside the herbarium is the Makerere University Botanic Garden, a living collection that complements the preserved specimens. It hosts rare and economically important plant species used for: Teaching plant morphology and ecology, demonstrating plant family characteristics, supporting student practicals and research, and conserving threatened indigenous flora. Special conservation highlights include cycads such as *Encephalartos equatorialis* and orchids like *Aerangis jacksonii*, both of which represent Uganda's vulnerable plant biodiversity.

Training, Research, and Global Partnerships

MHU plays a central role in academic training and public engagement. Biology students regularly undertake field attachments, while curators provide expertise in plant

identification, field methods, and herbarium management. The herbarium also serves a wide range of users beyond academia, including herbalists, farmers, school groups, and natural product developers seeking plant information such as uses, distribution, and ecological requirements.

International collaboration is a cornerstone of its work, with partnerships including: the East African Herbarium, Royal Botanic Gardens, Kew, Oslo Herbarium, and the Natural History Museum, University of Oslo. These collaborations support training, specimen exchange, graduate supervision, and capacity building. Notably, joint Plant Conservation courses have been delivered between 2022 and 2025.

Research and Scientific Contributions

MHU supports a wide portfolio of research activities, including: Orchid, fern, aloe, and Chlorophytum conservation studies; Taxonomy and distribution of spiny solanums; Identification of Important Plant Areas in Uganda; and Wild coffee distribution and conservation. It also contributes to postgraduate training, supporting numerous MSc and PhD students through ongoing projects.

Behind the Scenes: Herbarium Operations

Core activities at MHU include: Specimen preparation, drying, and archiving; Digitization and databasing using barcode and imaging systems; Field collection expeditions; and Teaching core plant taxonomy courses.

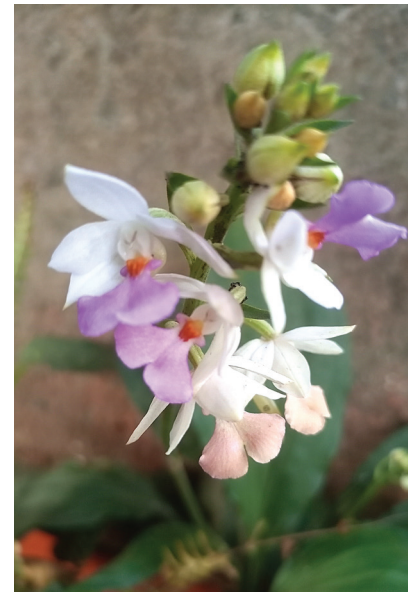
How and When to Visit the Herbarium

The herbarium is open Monday to Friday, 8:00am-5:00pm. Visitors seeking plant identification or specimen submission must provide properly pressed and labelled samples. Study tours and academic visits are arranged by appointment.

Dr. Mary Namaganda, Herbarium Curator

RESEARCH AND INNOVATION

The Botanic Garden



RESEARCH AND INNOVATION

New Study Reveals Rapid Genetic Isolation Among African Elephants

STUDY FINDINGS: *Elephants evolved through movement across vast landscapes, but today that movement is disappearing. Without urgent action to reconnect habitats, increasing genetic isolation could undermine the long-term survival of Africa's elephant populations.*

A major study in *Nature Communications* analysing 232 genomes from African elephants across 17 countries reveals a continent-wide shift from historical connectivity to rapid genetic isolation.

The research shows that elephants were once highly mobile, maintaining strong genetic diversity through gene flow across Africa. Today, that connectivity is breaking down due to human-driven habitat fragmentation, including agriculture, infrastructure, and settlement expansion.

The most severe genetic isolation is observed in parts of East Africa, particularly Eritrea and Ethiopia, where small, isolated herds exhibit high inbreeding and reduced resilience. Similar patterns are emerging in West Africa, shaped by long-term habitat loss and past pressures from the ivory trade.

The study also confirms that savanna and forest elephants have been on distinct evolutionary paths for over 4 million years, cautioning against broad use of hybridisation in conservation or translocation efforts.

A key positive example comes from the Kavango–Zambezi (KAZA) region

in southern Africa, where cross-border landscape connectivity remains largely intact, supporting greater genetic diversity.

Overall, the findings stress that protected areas alone are not sufficient. Long-term elephant survival depends on restoring ecological corridors and maintaining cross-border movement to

prevent further genetic decline.

Full Publication: <https://www.nature.com/articles/s41467-026-71262-w>

**Shared by Prof. Charles Masembe,
Co-author & member of staff in the
Department of Zoology, Entomology
& Fisheries Sciences at CoNAS,
Makerere University**



Photo credit Laura Bertola



Dr. Godwin Anywar is a CARTA graduate and Lecturer in the Department of Plant Sciences, Microbiology and Biotechnology at Makerere University

HIV Research: Bridging Traditional Medicine and Modern Science

Recognizing both the widespread use of medicinal plants and the need for new HIV therapies, Dr. Godwin Anywar embarked on research to scientifically evaluate these traditional remedies. Dr. Anywar is a CARTA graduate and Lecturer in the Department of Plant Sciences, Microbiology and Biotechnology at Makerere University.

Traditional medicine has long played a vital role in healthcare across Uganda, yet much of its rich knowledge remains undocumented and underexplored by modern science. Dr. Godwin Anywar, a lecturer at Makerere University and a CARTA alumnus, is helping to change that by combining indigenous knowledge with scientific research to advance HIV studies.

With over 1.4 million Ugandans living with HIV, many people rely on herbal

remedies alongside conventional treatment to manage symptoms and improve their well-being. Recognizing both the widespread use of medicinal plants and the need for new HIV therapies, Dr. Anywar embarked on research to scientifically evaluate these traditional remedies.

During his CARTA-supported PhD, he partnered with traditional healers to document medicinal plants used in HIV care before testing them in the laboratory for antiviral activity,

immune system effects, and safety. His research identified several plant species with promising activity against HIV-1, demonstrating the value of integrating indigenous knowledge with modern scientific methods.

His work has since gained international recognition. Through the CARTA fellowship, Dr. Anywar built global research networks, received the Global Young Investigator Award from the International Society for Ethnopharmacology, and now serves

RESEARCH AND INNOVATION

on editorial and advisory boards for leading international journals. He also collaborates with researchers worldwide and mentors graduate students across multiple institutions.

Beyond the laboratory, Dr. Anywar is committed to bringing research back to communities. As Principal Investigator of a project funded by the Swiss National Science Foundation, he led the

“His research identified several plant species with promising activity against HIV-1. As Principal Investigator of a project funded by the Swiss National Science Foundation, he led the creation of a travelling mobile museum showcasing Uganda’s traditional medicine practices”

creation of a travelling mobile museum showcasing Uganda’s traditional medicine practices. The exhibition toured communities across Uganda, engaging schoolchildren, traditional healers, and the public while promoting appreciation of indigenous knowledge. Its success attracted support from the Ministry of Tourism and inspired parallel exhibitions in Switzerland.

At Makerere University, Dr. Anywar continues to strengthen research capacity by introducing innovative teaching and supervision approaches that equip students with stronger research, writing, and analytical skills. He also serves as a Research Associate at the Bernhard Nocht Institute for Tropical Medicine in Germany, helping to build international partnerships while bringing valuable expertise back to Uganda.

Reflecting on his journey, Dr. Anywar credits the CARTA programme for laying the foundation for his success through mentorship, funding, and international exposure. His story demonstrates that when traditional knowledge and modern science work together, they can generate innovative solutions to pressing health challenges while preserving valuable cultural heritage for future generations.

More at: <https://cartafrica.org/bridging-traditional-medicine-and-modern-science-to-advance-hiv-research/>

Dr Anywar



RESEARCH AND INNOVATION

Mak Researchers Present Findings on Biology Performance Gaps to Education Ministry

Makerere University researchers presented findings of a nationwide study on the persistent poor performance in Biology in Uganda's national examinations to the Management team of the Ministry of Education and Sports.

The study, conducted across 100 districts with over 5,200 participants, identified limited field-based learning, inadequate digital access, and weak project-based learning-particularly at Advanced Level-as key factors affecting student performance. It also highlighted the influence of community attitudes toward science education.

To address the challenges, the researchers recommended strengthening field-based learning, improving school laboratory and digital infrastructure, enhancing teacher training, and promoting science clubs and mentorship programmes.

The research team is seeking funding to pilot targeted interventions in affected regions, with the findings expected to guide future policy and improvements in science education.



RESEARCH AND INNOVATION

FINDING SOLUTIONS:

Mak Mathematicians Partner with Industry Players



Some of the stakeholders that participated in the workshop aimed at strengthening collaboration between the Department of Mathematics and industry partners

The Department of Mathematics at Makerere University convened a three-day workshop in June to deliberate on strategies to strengthen the role of mathematics in addressing real-world challenges through enhanced collaboration between academia and industry.

Held under the Africa-Europe Cluster of Research Excellence in Mathematics (CoRE-MATH) initiative in partnership

with the NORHED II Mathematics for Sustainable Development (Math4SDG) project, the workshop brought together academics, researchers, and industry leaders from across East Africa to explore ways of bridging the long-standing gap between mathematical research and its practical application in society.

Participants explored how mathematical modelling, data science,

and computational techniques can drive innovation across sectors including healthcare, urban planning, finance, agriculture, aquaculture, energy, and environmental management. Expert presentations showcased practical applications ranging from medical decision-making and sustainable city planning to methane extraction, financial risk assessment, and neonatal healthcare.

RESEARCH AND INNOVATION

A recurring message throughout the workshop was that while mathematical research in East Africa has grown significantly, stronger partnerships with industry are essential to translate research into impactful solutions that address societal challenges.

The workshop concluded with a shared commitment to sustained

engagement between universities and industry to ensure that mathematical research contributes more directly to economic development and societal needs. Participants recommended establishing structured follow-up activities, including future Mathematics in Industry Study Groups, in which selected industrial challenges will be further explored through joint

academic–industry research teams.

As a founding partner in the CoRE-MATH initiative, Makerere University continues to position itself as a regional leader in advancing mathematical sciences, strengthening research capacity, and fostering innovation that contributes to sustainable development across Africa.

PICTORIAL



The VC with some of the CoNAS staff after their engagement with the University Management



The A-CCAP project team during their inception meeting held in Jinja City in April. Led by Dr Peter Akoll, the project targets to transform fish waste into climate-smart, nutritious products



The project team behind the popularization of biogas production with Mbarara City officials during their dissemination workshop held on 15th April 2026. The project is led by Dr Patience Tugume.



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