Young Talents Awards
SUB-SAHARAN AFRICA

For Women in Science

unesco | FONDATION L'ORÉAL

ABOUT THE

Fondation L'Oréal

The Fondation L'Oréal supports and empowers women to shape their future and make a difference in society, focusing on three major areas: scientific research, inclusive beauty and climate action.

Since 1998, the L'Oréal-UNESCO *For Women in Science* program has worked to empower more women scientists to overcome barriers to progression and participate in solving the great challenges of our time, for the benefit of all. For 25 years, it has supported more than 4,100 women researchers from more than 110 countries, rewarding scientific excellence and inspiring younger generations of women to pursue science as a career.

Convinced that beauty contributes to the process of rebuilding lives, the Fondation L'Oréal helps vulnerable women to improve their self-esteem through free beauty and wellness treatments. It also enables underprivileged women to gain access to employment with dedicated vocational beauty training. On average, around 16,000 people have access to these free treatments every year and more than 35,000 people have taken part in professional beauty training, since the program began.

Finally, women are affected by persistent gender-based discrimination and inequalities, exacerbated by climate change. While they are on the frontline of the crisis, they remain under-represented in climate decision-making. The Fondation L'Oréal's *Women and Climate* program supports women who are developing climate action projects addressing the urgent climate crisis, and raises awareness of the importance of gender-sensitive climate solutions.

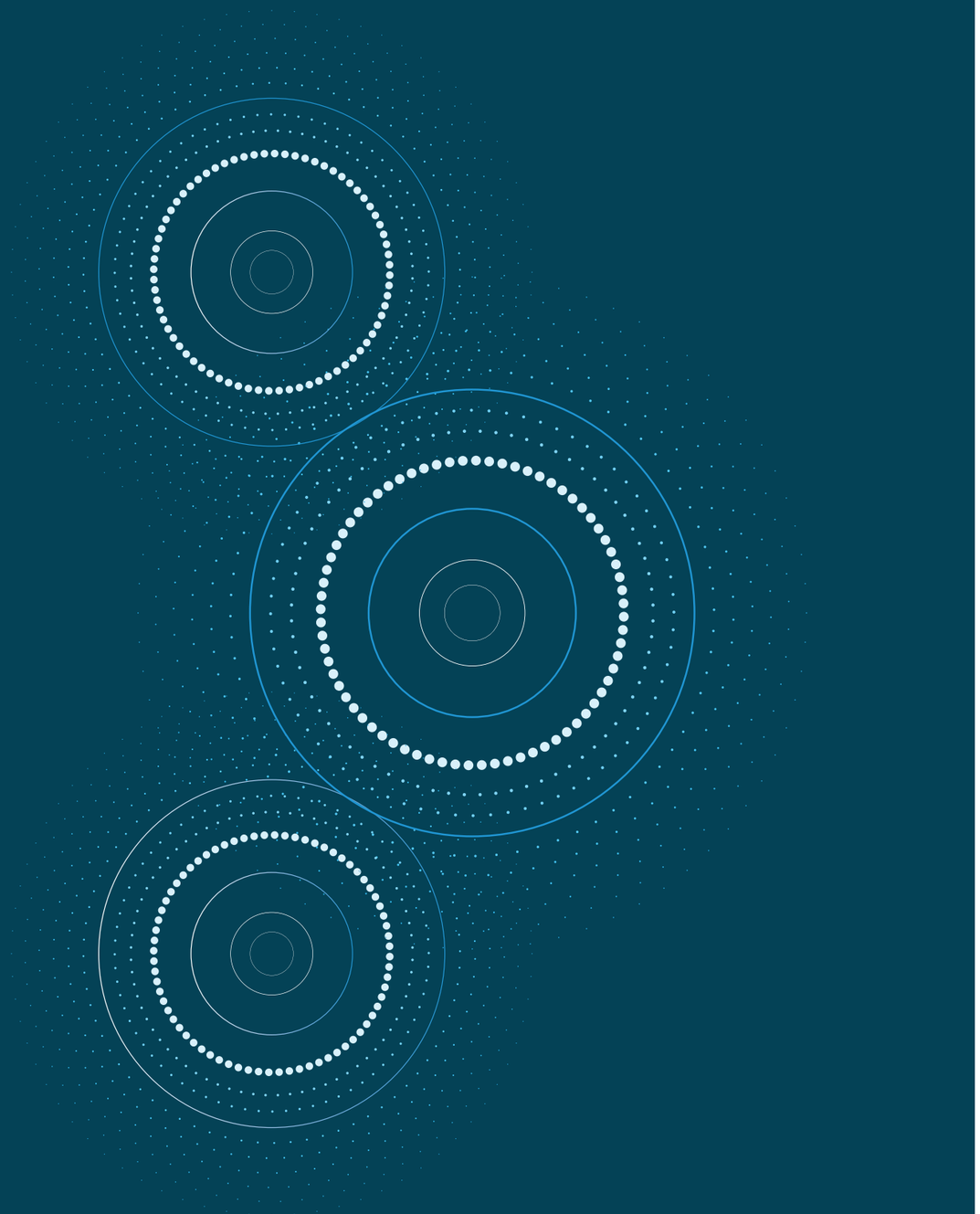
ABOUT

UNESCO

Since its creation in 1945, UNESCO, the United Nations Educational, Scientific and Cultural Organization, has worked to create the conditions for dialogue among civilizations, cultures and peoples, based on respect for common values. UNESCO's mission is to contribute to the building of peace, the eradication of poverty, sustainable development and intercultural dialogue through its unique expertise in education, science, culture, communication and information. The Organization has two global priorities: Africa and gender equality.

UNESCO is the only UN specialized agency with a specific mandate in the sciences, symbolized by the "S" in its acronym. Through its science-related programs, UNESCO contributes to the implementation of the United Nations Sustainable Development Goals, helps developing countries build their scientific and technological capacities, and supports Member States in their efforts to develop science policies and programs. It also supports Member States in their efforts to develop effective public policies that integrate local and indigenous knowledge systems.

UNESCO promotes scientific research and expertise in developing countries. The Organization leads several intergovernmental programs on sustainable management of freshwater, ocean and terrestrial resources, biodiversity conservation, and the use of science to address climate change and disaster risk reduction.



SUMMARY

Editorial and key figures

Empowering women scientists in Sub-Saharan Africa is a collective responsibility

Africa is the continent with the lowest greenhouse gas emissions, producing just 4% of global emissions. However, it's also the continent that suffers the greatest consequences of climate disruption, and at multiple levels, with impacts on people's health, the environment, economies and society. Today more than ever, in a world in perpetual crisis, we must empower all scientific talents to address the major challenges of the century.

Yet we are still far from achieving this – being a woman in science in Sub-Saharan Africa today means being prepared to fight to pursue your career journey. Our young talents' profiles speak for themselves. All too often, they have had to push to make their way in a predominantly male world, overcome family or social prejudice from the youngest age, and experience numerous instances of sexism or harassment on a daily basis, in order to become the accomplished scientists they are today. Their resilience inspires us.

These brilliant scientists, Ph.D. students and post-doctoral researchers, are advancing diverse disciplines such as biology, agronomy, physics, mathematics, genetics and engineering. Residents of 17 countries including Lesotho and Cabo Verde, represented for the first time this year, they work every day to improve the daily life of Africa's people, whether it's from a health or environmental perspective. Among these talented women are the biologist Dairou Hadidjatou, a real pioneer in the treatment of cardiovascular diseases in Cameroon, the genetician Esther Uwimaana, who's conducting research on potential vaccines against tuberculosis, the physicist Mwende Mbilo, who is innovating to create clean, sustainable energy solutions in Kenya, and many others. All of them are driven by the relentless desire to advance science and thereby the whole of society, despite the obstacles that punctuate their life journey.

Highlighting their destinies is an absolute necessity in a context where Africa today represents just 2.5% of scientists globally. How should we imagine that young girls in Africa will enter into scientific careers, while women researchers in their countries are invisibilized by the media, scientific publications and international forums? The need for scientific role models to inspire the young generations has never been more pressing.

> *"Neither Africa nor the world can overcome the environmental, societal, health and geopolitical crises of our time without one half of humanity."*

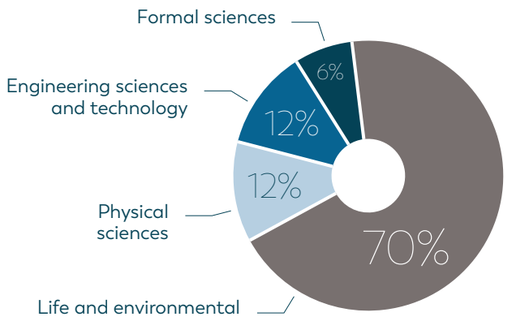
For years, the Fondation L'Oréal has taken action by creating the enabling conditions for these talents to make their voices heard. For this 14th edition of the Sub-Saharan Africa award, we are reinforcing our commitment by increasing the number of young talents awarded from 20 to 30. These brilliant researchers will benefit from four days of leadership training, with the aim of building their assertive communication and negotiation skills, and strengthening their ability to react effectively in situations of harassment or when speaking publicly or with the media. Uniting these women scientists, who have often lived situations of profound solitude, also means providing them with the opportunity to speak out and enabling them to take stock of the obstacles they have encountered. Put simply, we are helping to equip them with the tools they need to break the glass ceiling and at last take their rightful place in the scientific community.

Enabling such talents to emerge onto the public stage and be recognized for the excellence of their work requires urgent action on multiple levels. It's a responsibility that we must all take on – institutions, businesses, civil society and citizens, both men and women. Neither Africa nor the world can overcome the environmental, societal, health and geopolitical crises of our time without one half of humanity. Our 30 young talents represent a real source of inspiration for every young girl who dreams of being a woman scientist. Let's encourage them and support them collectively, so that we can all be ready to address future challenges.

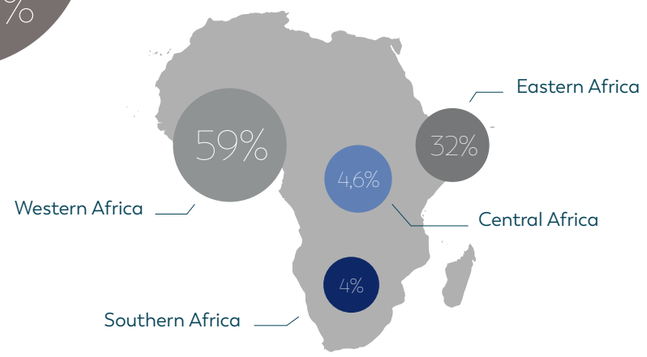
Alexandra Palt
Chief Executive Officer, Fondation L'Oréal

2023 APPLICATIONS REVIEW

632
ELIGIBLE APPLICATIONS
483 Ph.D. students
149 postdoctoral students



REPARTITION OF SCIENTIFIC DISCPLINES AND LOCATIONS



14 YEARS
OF PARTNERSHIP
with UNESCO

MORE THAN
211
WOMEN RESEARCHERS
awarded a grant and over
72 scientists involved
in the selection process

13
LAUREATES OF THE INTERNATIONAL AWARDS
distinguished
for the excellence
of their scientific work

EVALUATION PROCEDURE

PEER REVIEW
66 scientific experts

632 applications

JURY
10 members

140 shortlisted candidates

30 Young Talents

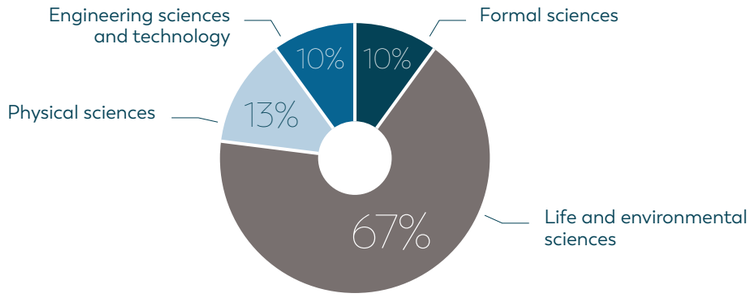
Jury chaired by the
Professor Aggrey AMBALI,
Program Funding Directorate
at the African Union
Development Agency
(AUDA-NEPAD), South Africa

WINNERS 2023

30
YOUNG TALENTS

25 Ph.D. students
5 postdoctoral students

REPARTITION OF SHORLISTED CANDIDATES BY SCIENTIFIC DISCIPLINES



Southern Africa

Constance Chingwaru

ZIMBABWE

Doctoral student in Biotechnology

LABORATORY: BIOLOGICAL SCIENCES LABORATORY
INSTITUTION: BINDURA UNIVERSITY OF SCIENCE EDUCATION

Creating biopesticides from native plants to protect maize crops

Constance Chingwaru is rewarded for her groundbreaking work to create an effective biopesticide to control fall armyworm in maize crops, using local plants in Zimbabwe. She has benefitted from the mentorship of her uncle, a science professor, and Ph.D. supervisor, whom she describes as a pillar of strength.

How did your interest in science begin?

My uncle's research on the application of natural products in drug discovery inspired my scientific journey, prompting me to work in the same research area. He taught me how to conduct research, publish academic papers, and apply for funding. I dream of contributing to health sciences through drug discovery, mining novel antimicrobial agents from natural products.

Could you present your research and its practical applications?

I'm developing an innovative biopesticide from locally accessible native plants to help control fall armyworm – which poses a significant food security risk in Sub-Saharan Africa – in maize. Once finalized, the solution could be part of an integrated pest management strategy with potential for commercialization and export locally and regionally. It would also represent a good alternative to synthetic pesticides, helping smallholder farmers to save costs and adopt more sustainable practices.

What does being a woman in science mean to you?

I am a pioneer, a torch bearer, and represent girls and women in my country and continent who have a passion for science. Women are making great scientific strides and occupying leadership positions. In Zimbabwe, we say 'musha mukadzi', meaning a 'woman makes a home'. Empowering more women scientists will provide role models for young women, inspiring them to pursue scientific careers, while increasing the number of solutions that benefit society and establishing women as important members of their communities.

> *"I am a pioneer, a torch bearer, and represent girls and women who have a passion for science."*

Nthabeleng Hlapisi

LESOTHO

Doctoral student in Medicinal Chemistry

LABORATORY: INORGANIC AND MATERIALS GROUP
INSTITUTION: UNIVERSITY OF KWAZULU NATAL

Developing innovative phototherapies to treat cancer

Nthabeleng Hlapisi is a doctoral student from Lesotho with an experience in mentoring and research. Her research is based on medicinal chemistry in South Africa. She is rewarded for her work to improve existing phototherapies to better treat cancer. Having made her way independently in science, she actively supports young people in their career journeys.

How did your interest in science begin?

I loved science at school and felt empowered by reading about interesting discoveries and the mysteries of the universe. I was also a science club president. Later, I attended a funeral of a friend's mother who had died of HIV, with minimal understanding of the virus. I promised myself that I'd become a scientist to help others in finding medical remedies.

Could you present your research and its practical applications?

I'm combining photodynamic (PDT) and photo-thermal therapy (PTT) to deliver effective, less invasive cancer treatment solutions. For example, I'm exploring the potential of plant-mediated synthesized nanoparticles to produce localized heat, affecting only the tumor cells. I'm also using photosensitizers that generate reactive singlet oxygen, which in turn kills malignant cells. The combination therapy of PTT and PDT enhances the efficacy and biocompatibility of treatment, while reducing any potential side effects.

What does being a woman in science mean to you?

It's a great achievement, an honor and a journey of continuous growth. I am critical thinker, excellent, smart and resilient, hard-working and innovative, while also feminine. I want to help women rise up in science, building the foundations for them to prosper, collaborate and create the solutions that Africa needs, including through mentorship. I find great meaning in the fact that women in science represent empowerment, tenacity, and the quest for knowledge.

> *"I dream that we could harness sustainable methods and plant mediated medicines to find affordable, accessible cures for diseases across Africa."*

Maria Nelago Kanyama

NAMIBIA

Doctoral student in Artificial Intelligence (AI)

LABORATORY: DIGITAL FORENSICS AND INFORMATION SECURITY (DFIS) RESEARCH CLUSTER
INSTITUTION: NAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

Harnessing artificial intelligence to fight water scarcity

Maria Nelago Kanyama is recognized for forging ahead with research to leverage technologies such as machine learning to detect non-revenue water (which is lost before it reaches the customer) and tackle the issue of water scarcity in Namibia and beyond. She has embraced the challenges of being a woman in science as catalysts for personal growth and innovation, and is working to transform groundbreaking ideas into tangible realities, while making a lasting impact on the global water scarcity crisis.

How did your interest in science begin?

My interest in science began at a young age, sparked by my strong aptitude for science subjects. This led me to seize an opportunity to study electronics and telecommunications engineering provided by a Namibian telecommunications company. After completing my degree, my fascination with smart networks continued to grow, motivating me to expand my studies to encompass machine learning and anomaly detection, which have become integral components of my scientific journey.

Could you present your research and its practical applications?

My research employs cutting-edge technologies, including the internet of things, machine learning and blockchain, in order to combat water scarcity in Central Namibia. These technologies enable real time monitoring of water distribution and consumption, promptly detect leaks, water meter tampering and water theft. By optimizing water management, enhancing transparency and reducing losses, I'm addressing immediate supply challenges and setting a precedent for sustainable resource management, contributing to global water scarcity solutions.

What does being a woman in science mean to you?

Breaking barriers, igniting change and paving the way for innovation. My career has been an exhilarating odyssey, filled with boundless excitement and intellectual fulfillment, and my success inspires me to empower my fellow women in science. Together, we can create a vibrant, inclusive community that thrives on diversity, unlocks women's potential to drive progress and propels humanity forward.

> *"My success inspires me to empower my fellow women in science. Together, we can create a vibrant, inclusive community that thrives on diversity."*

Mesha Mbisana

BOTSWANA

Doctoral student in Analytical Chemistry

LABORATORY: CHEMISTRY DEPARTMENT
INSTITUTION: UNIVERSITY OF BOTSWANA

Improving food safety to promote better health in Africa

Mesha Mbisana is rewarded for her work to improve the safety of food crops such as maize and sorghum by removing harmful toxins, in order to improve health in Botswana's communities.

How did your interest in science begin?

My interest in science began in secondary school, when my teachers inspired me to excel and eventually choose a career in science. My food safety research was promoted by the support and mentorship of my supervisor, Dr. Dikabo Mogopodi during an undergarduate project.

Could you present your research and its practical applications?

I'm researching the development of simple, effective and sustainable methods to analyze and remove mycotoxins (toxic compounds naturally produced by certain types of fungi) from food such as maize and sorghum. This involves the use of synthetic polymers and coal fly ash to absorb the toxins. My research represents a small step towards the dream of healthy, nutritious and sustainable food resources for Africa.

What does being a woman in science mean to you?

I am a testament to all those women who have walked before me, influenced me directly and indirectly. Broader initiatives must be taken to encourage women to pursue careers in science, and I believe it is my duty to inspire other women. With an equal representation of men and women, we will harness the full potential of scientific talent, improving the quality and impact of scientific advances, while improving economic growth and increasing public trust in our discoveries.

> *"With an equal representation of men and women, we will harness the full potential of scientific talent, improving the quality and impact of scientific advances."*

Felicidade Niquice

MOZAMBIQUE

Doctoral student in Occupational Safety and Health

LABORATORY: INSTITUTO NACIONAL DE SAÚDE
INSTITUTION: UNIVERSITY OF PORTO, PORTUGAL

Promoting occupational health and safety in Mozambique's hospitals

Felicidade Niquice is a doctoral student and medical doctor from Mozambique, pursuing research in occupational safety and health. In particular, she is rewarded for her work to promote safer working conditions in the country's hospitals and thereby strengthen its healthcare. She is inspired by helping her patients and giving back to her community.

How did your interest in science begin?

I have always wanted to be a medical doctor, ever since I was at school. The first time I saw the peel of an onion under a microscope consolidated my desire to pursue science. I also had inspiring teachers who encouraged me to dream.

Could you present your research and its practical applications?

As the first medical doctor to pursue a Ph.D. in Occupational Health and Safety in Mozambique, I am researching hospital working conditions in the country's Inhambane province. I'm studying healthcare workers knowledge, attitudes and practices around bloodborne diseases mainly Hepatitis B, C and HIV, assessing their quality of sleep and correlating my findings with instances of occupational accidents. I will also collect blood samples (from the healthcare workers) to test for Hepatitis B and C and HIV. I hope that these insights will inform hospital health and safety policies in Mozambique and beyond.

What does being a woman in science mean to you?

As a woman, I bring a different perspective to science and innovation. And I also have a duty to pave the way for girls to feel inspired and join us on this journey. I love being a woman in science. I am increasingly in contact with phenomenal change-makers to help achieve a sustainable world. Together, we are breaking the glass ceiling and giving back to our communities. We must ensure that girls are more aware of pioneering women scientists and empower them to pursue a career in science.

> *"The first time I saw the peel of an onion under a microscope consolidated my desire to pursue science."*

Bonolo Phinius

BOTSWANA

Doctoral student in Infectious Diseases

LABORATORY: BOTSWANA HARVARD HIV REFERENCE LABORATORY
INSTITUTION: BOTSWANA HARVARD HEALTH PARTNERSHIP; UNIVERSITY OF BOTSWANA

Shining a light on pathways to fight hepatitis B in Botswana

Bonolo Phinius is rewarded for her work to shine a light on the prevalence of the hepatitis B virus (HBV) in Botswana, where a lack of research on the disease has prevented progress on treatment and prevention. Her circle of mentors and supporters has been integral to navigating her research journey and achieving a work-life balance.

How did your interest in science begin?

With an inquisitive mind, I followed a scientific path from an early age, enjoying mathematics, chemistry and biology. I was fortunate to be encouraged by family, friends and teachers. Learning more about infectious, incurable diseases that impact people's quality of life inspired me to dream of closing the gaps in research to find a cure.

Could you present your research and its practical applications?

The lack of nationally representative HBV data in Botswana catalyzed my journey to determine hepatitis B virus (HBV) prevalence and diversity in my country. I'm studying participants in 30 rural and peri-urban communities in Botswana, some of which are understudied. My findings have identified potential HBV hotspots and may guide policy on prevention strategies.

What does being a woman in science mean to you?

I'm contributing to closing the gender gap in science and empowering other women through shared experiences. It brings me joy to push boundaries and excel in my field. Women scientists must continue to be activists, breaking barriers with their achievements and pursuing their passion with the utmost persistence. Gradually, their efforts are bearing fruit. By reaching gender equality, we will encourage more brilliant minds that could contribute to solving the world's great challenges.

> *"Women scientists must continue to be activists, breaking barriers with their achievements and pursuing their passion with the utmost persistence."*

Bhamini Sreekeessoon

MAURITIUS

Doctoral student in Electrical and Electronic Engineering

LABORATORY & INSTITUTION: UNIVERSITÉ DES MASCAREIGNES
RESEARCH LABORATORY

Harnessing tidal energy to power Mauritius' future

Bhamini Sreekeessoon is awarded for her work to promote marine renewable technologies in Mauritius by harnessing the island's tidal energy to help ensure a cleaner, more sustainable future. Her scientific journey has been supported by her family, and in 2021, she represented her Mauritius at 'MT180' in Paris, where doctoral students present their research to the public.

How did your interest in science begin?

I've always had an inquisitive mind, and am particularly curious about nature and technologies. I had an encyclopedia set during my childhood, and I was fascinated by the scientific discoveries that have revolutionized humanity. As a young student, I looked forward to solving challenges and wanted to pursue science as a career.

Could you present your research and its practical applications?

I'm assessing the potential of marine renewable technologies in Mauritius. This involves measuring wave heights and time periods at various locations around the island for different seasons. I analyze the data with wave power equations, and I am implementing a laboratory model of a wave energy converter. Tidal energy stands to make a significant contribution to the island's clean energy transition, yet has not been fully explored. My findings could influence policy makers to invest in marine renewables.

What does being a woman in science mean to you?

Science and technology are changing the world around us, and there are so many opportunities for women scientists. However, the lack of gender equality in science continues to hinder sustainable development. Today, Africa is at a crossroads whereby innovators, scientists and engineers must solve issues related to climate change, food insecurity and disease. Women scientists are playing a vital role in promoting new solutions, expanding the scope of research and contributing to the continent's transformation.

> *"Science and technology are changing the world around us, and there are so many opportunities for women scientists."*

Central Africa

Dairou Hadidjatou

CAMEROON

Doctoral student in Cell Physiology

LABORATORY: PHARMACOLOGY AND DRUG DISCOVERY
INSTITUTION: INSTITUTE OF MEDICAL RESEARCH AND MEDICINAL PLANTS STUDIES

Harnessing the power of nature plants to treat cardiovascular disease

Dairou Hadidjatou is awarded for her pioneering biology research in Cameroon, where she is exploring the potential of the native Garcinia kola plant to help treat cardiovascular diseases. She has overcome traditional views in her community to pursue her scientific studies, demonstrating to her colleagues and society that women can maintain their role in the community and excel as scientists.

How did your interest in science begin?

My interest in science emerged in my childhood. My father was a veterinary doctor and we had sheep at home. One day, he wasn't there and I had to deliver a lamb by myself. Since then, I have been passionate about biology. It's an exciting and attractive field and I knew that I would make it my profession.

Could you present your research and its practical applications?

My research concerns the elucidation of the molecular antiatherogenic mechanism (ability to unblock arteries) of Garcinia kola (an edible seed found in Cameroon and other African countries). I aim to demonstrate how it can prevent, delay or limit lipid accumulation in blood vessels. Native to forest areas, the plant is easily accessible to local people, providing a potentially affordable solution. This study will inform the improvement of strategies to harness the properties of plants to manage cardiovascular diseases.

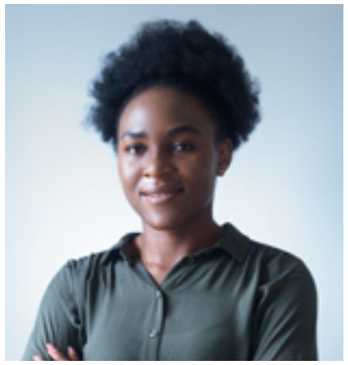
What does being a woman in science mean to you?

It's a great responsibility, involving dedication, self-confidence and the ability to push your limits, while changing mindsets and empowering more women to become scientists. Gender equality in science will increase research quality and economic prosperity, women scientists have a critical role to play in contributing to the transformation and development of Africa by becoming scientific leaders.

> *"Women scientists have a critical role to play in contributing to the transformation and development of Africa."*

Lydie Messado Kamga

CAMEROON



Doctoral student in Ecology

LABORATORY: PLANT SYSTEMATICS, BOTANY AND ECOLOGY LABORATORY, HIGHER TEACHERS' TRAINING COLLEGE
INSTITUTION: UNIVERSITY OF YAOUNDÉ I; BOTANY AND MODELING OF PLANT ARCHITECTURE AND VEGETATION, IRD FRANCE

Conserving orchids in the Cameroon rainforests

Lydie Messado Kamga is awarded for her research to conserve tropical epiphytic angraecoid orchids. She has overcome challenges including the physical effort of collecting data in Cameroon's rainforest, field logistics and a lack of sufficient funding, laboratories and equipment to persevere with her scientific journey.

How did your interest in science begin?

Scientific subjects were my favorite at school as I initially wanted to be a medical doctor. I was also encouraged by my mother and elder sister. My current research was inspired by an internship on orchids. I couldn't resist their fragrances from our first encounter, and wanted to explore their unique nature.

Could you present your research and its practical applications?

My goal is to promote the conservation management of biodiversity to help secure a sustainable future for next generations. My research provides new pollination systems, which are vital to understanding orchid reproduction and ensuring the survival of these plants and their pollinators. It also provides the first descriptions of floral scents of most tropical epiphytic angraecoid orchids which can be used in the cosmetic, perfumery, pharmaceutical, therapeutic, psychological, food and beverage industries.

What does being a woman in science mean to you?

To me, it means being a role model and mentor for women in research, encouraging each other to thrive despite social barriers, discrimination and cultural responsibilities, as we find solutions to help improve our environment. Women are breaking gender stereotypes and demonstrating that we can succeed and be good leaders in diverse fields. Now, we need more support networks to help women balance work and family life, a complete mindset shift in society and collaborations between younger women and potential role models if we want to empower more women to study science.

> *"Now, we need more support networks to help women balance work and family life, and a complete mindset shift in society."*

Fanta Yadang Sabine Adeline

CAMEROON

Post-doctoral researcher in Neuroscience

LABORATORY: PHARMACOLOGY AND DRUG DISCOVERY
INSTITUTION: INSTITUTE OF MEDICAL RESEARCH AND MEDICINAL PLANTS STUDIES

Exploring medicinal solutions to neurogenerative diseases

Fanta Yadang is rewarded for her research into medicinal plants to help cure Alzheimer's disease. In a region where girls are not encouraged to go to school, she has risen up to challenge stereotypes and overcome workplace discrimination, forging a path to scientific excellence. She is determined to persevere with her dreams and set an example for girls in Cameroon and beyond.

How did your interest in science begin?

I was fascinated by science at an early age, and biology always raised my curiosity. I developed an interest in neuroscience during my postgraduate study.

Could you present your research and its practical applications?

My research is motivated by the need to better understand the pathophysiology of neurodegenerative diseases, particularly Alzheimer's disease and discover a novel source of therapy. My investigations include changes in synaptic transmission, which can lead to pathways involved in aging and neurodegenerative diseases, such as memory impairment, molecular dysfunction, neuroinflammation and oxidative stress. I evaluate the neuroprotective and therapeutic properties of medicinal plants used in African pharmacopeia to help prevent illness and improve quality of life.

What does being a woman in science mean to you?

African women scientists are entrepreneurial and resourceful. I am following my curiosity and passion, pursuing a dynamic career with challenging goals, and finding creative approaches to promoting wellbeing in my community through scientific knowledge. Africa's future is in the hands of its scientists.

> *"Africa's future is in the hands of its scientists."*

East Africa

Hemen Tesfaye Gelaw

ETHIOPIA

Doctoral student in Microbiology

LABORATORY: BIO-INSTRUMENTATION
INSTITUTION: ADDIS ABABA UNIVERSITY

Fighting antimicrobial resistance in food supply chains

Hemen Tesfaye Gelaw is rewarded for her work to prevent antimicrobial resistance by investigating pathogenic bacteria found in agricultural supply chains. Based in Ethiopia, she is overcoming a lack of laboratory equipment and chemicals by leveraging her versatility collaborating and learn new ways of conducting experiments.

How did your interest in science begin?

As a child, I was fascinated by experimental science classes. I was also encouraged by my father and my sister, who is a medical parasitologist and still acts as my mentor, giving me career advice and encouragement. Drug resistance is now a major challenge, and drug-resistant microbes have been found in agricultural products consumed by people. My work is motivated by an ambition to find a solution and protect lives.

Could you present your research and its practical applications?

My research generates information about the antimicrobial resistance profiles of the entero-bacteriaceae family found in irrigation water, soil and certain fresh produce supply chains. My findings will enable more sustainable practices and inform environmental policy-makers and other stakeholders. I hope to witness the development of a low cost medication to address resistant pathogenic organisms and eliminate the global public health threat..

What does being a woman in science mean to you?

It's a great accomplishment - being one of the few female scientists gives me a sense of empowerment and motivates me to pave the way for future generations. In addition to overcoming the deeply rooted cultural bias in African society, we need more training to equip women with leadership skills and build their confidence. Gender equality in science will help ensure the protection of our environment, transform our food system, improve health and alleviate poverty.

> *"Being one of the few female scientists gives me a sense of empowerment and motivates me to pave the way for future generations."*

Cheryl Kerama

KENYA

Doctoral student in Public and Environmental Health

LABORATORY: CENTRE FOR RESPIRATORY DISEASES RESEARCH-KENYA MEDICAL RESEARCH INSTITUTE, UNIVERSITY OF WASHINGTON-KENYA (UW-K)
INSTITUTION: KAVI-INSTITUTE OF CLINICAL RESEARCH, UNIVERSITY OF NAIROBI

Exploring how sugar regulation impacts tuberculosis

Cheryl Kerama is recognized for her original gene discovery work in idiopathic pulmonary fibrosis (a life-threatening and currently incurable lung disease) and highlighting the influence of dysglycaemia (abnormal sugar regulation) on the development of tuberculosis (TB) with and without HIV co-infection. Her findings also demonstrate its economic impact in low to middle income countries and have the power to shape health policy, helping to prevent more people from developing the illness in Kenya and beyond.

How did your interest in science begin?

Playing outside at an early age, I experienced environmental allergies and almost lost my legs to a grass allergy, so I was determined to pursue science, particularly immunology. I want to reduce the gap between scientific discovery and implementation.

Could you present your research and its practical applications?

With a high rate of undiagnosed diabetes in Sub-Saharan Africa, I am exploring the relationship between non-communicable diseases (NCDs), particularly dysglycaemia, TB and HIV. Through an international research collaboration, I have led a TB prevalence survey with the Ministry of Health, assessing more than 6,000 people in Kenya. Our results have the potential to create a minimum care package and reduce health costs.

What does being a woman in science mean to you?

Women in science are like a lotus flower, majestic in their petals, yet flourishing in mud. We face the multiple challenges in our way with amazing resilience. We need to address the root causes preventing women scientists from advancing in their careers. Science thrives on diversity and the more inclusive we are, the faster we can solve Africa's problems by Africa and for Africa. I want to inspire young girls and boys, while also encouraging my daughter as her mother and mentor, by going boldly where it is uncomfortable to go.

> *"Science thrives on diversity and the more inclusive we are, the faster we can solve Africa's problems by Africa and for Africa."*

Mwende Mbilo

KENYA

Doctoral student in Condensed Matter Physics

LABORATORY: DEPARTMENT OF PHYSICS
INSTITUTION: UNIVERSITY OF NAIROBI

Innovating to improve solar energy solutions in Kenya

Mwende Mbilo is a doctoral student innovating to improve the efficiency of organic solar cells in order to bring more sustainable and reliable clean energy solutions to people in her home nation of Kenya. She is boldly overcoming the challenge of gender inequality in the workplace and determined to support and encourage her fellow women scientists.

When did your interest in science begin?

My interest in science was influenced by my parents, who were science teachers, particularly my father, who encouraged me to be more adventurous in my exploration of the world. I was inspired to begin my research when solar energy industries emerged in Kenya to provide energy access to underserved, rural and remote regions.

Could you present your research and its practical applications?

I'm striving to uncover a solution to unreliable and low energy production in organic solar cells (which use sunlight absorption materials entirely based on organic semiconductors such as polymers, as opposed to the inorganic crystalline silicon used in conventional solar cells). The innovation I'm pursuing is combining new strategies and affordable materials into existing cells to extend their lifetime and improve performance. I dream of harnessing an inexhaustible energy source to increase quality of life in our communities.

What does being a woman in science mean to you?

I'm in a good position to encourage and empower African women scientists through clean energy solutions. Women in Africa must be involved in solving and making decisions on other issues disproportionately affecting girls and women, such as food security, health and literacy.

> *"I dream of an inexhaustible energy source to increase quality of life in our communities."*

Naelijwa Mshanga

UNITED REPUBLIC OF TANZANIA

Doctoral student in Nutrition and Dietetics

INSTITUTION: NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY

Promoting better nutrition among women and children

Naelijwa Mshanga is a doctoral student researching the relationship between toxins found in foods and nutritional deficiencies among children in United Republic of Tanzania, aiming to improve food safety and nutritional adequacy. Determined to pursue science at a higher level, she overcame the lack of science teachers at her school by seeking tuition to pass the national exams which led her to the university.

How did your interest in science begin?

My father cultivated my interest in science at an early age by buying scientific storybooks and teaching me chemistry during school holidays. He inspired me to believe that I could achieve anything. I later developed a passion for science, particularly nutrition, and determined to dedicate my career to research that could help prevent diseases.

Could you present your research and its practical applications?

I am exploring the relationship between Tanzanian children's exposure to aflatoxins (toxins produced by certain fungi found on crops such as maize, peanuts, cotton, and tree nuts) and micronutrient deficiencies. In this way, I hope to help influence policy on (improving nutritional status in women and children). My scientific dream is to create a nano-iron supplement that goes directly to the spleen and red blood cells to prevent iron deficiency in children and women of reproductive age.

What does being a woman in science mean to you?

Bringing the scientific community, a step closer to bridging the gender equality gap. In Africa, it's enabling me to inspire the next generations of girls to pursue science, so they can contribute fully to solving the challenges of climate change, food security and sustainable agriculture. Men have a vital role to play in encouraging African girls to study science, while women must continue to demonstrate that a career in science is possible.

> *"Men have a vital role to play in encouraging African girls to study science."*

Faith Njeru

KENYA

Doctoral student in Food Security and Agribusiness

LABORATORY: SACIDS MOLECULAR LABORATORY
INSTITUTION: SOKOINE UNIVERSITY OF AGRICULTURE, UNITED REPUBLIC OF TANZANIA

Developing novel diagnostics to conserve Kenya's maize crops

Faith Njeru is using nanobodies derived from the serum of camelids (the mammal family that includes camels and llamas) to help control a viral disease affecting maize plants in East Africa and beyond. Based in Kenya, she has overcome low salaries, short-term contracts and a lack of funding and equipment to persevere with her studies.

How did your interest in science begin?

At primary school, I performed well in sciences and mathematics, and often thought I'd like to be a scientist in order to fulfill my potential and contribute to society. My mother has been a great mentor by having faith in me and showing relentless support for my academic endeavors.

Could you present your research and its practical applications?

I'm developing an efficient and easily accessible diagnostic tool to identify maize lethal necrosis (a viral disease affecting maize crops in East Africa, South East Asia and South America). The kit will enable farmers to detect the maize viral disease in a timely manner and deploy practices to reduce yield loses, helping to improve their livelihoods. The kit will also be available to seed companies, plant health protection agencies and agricultural extension workers, informing decisions on the control of maize virus diseases and the import and export of maize germplasm.

What does being a woman in science mean to you?

I enjoy serving as an inspiration to other young women and showing them that their dreams are achievable. This means a lot to me. We need to improve the way science is taught in school, delivering more practical demonstrations that relate to everyday life. By including more women in science, we will create more research focused on society's needs and amplify humanity's progress.

> *"I enjoy serving as an inspiration to other young women and showing them that their dreams are achievable."*

Devotha Godfrey Nyambo

UNITED REPUBLIC OF TANZANIA

Post-doctoral researcher in Automation and Control Systems

LABORATORY: AFRICA ANGLOPHONE MULTI-DISCIPLINARY RESEARCH LABORATORY
INSTITUTION: NELSON MANDELA AFRICAN INSTITUTION OF SCIENCE AND TECHNOLOGY

Leveraging machine learning to prevent infectious disease in livestock

Devotha Godfrey Nyambo is rewarded for her work to leverage machine learning to identify an infectious disease among Tanzanian sheep and goat herds. Her research will contribute to empowering smallholder women farmers and improving livelihoods. She has learnt to navigate the highs and lows of research by retaining sight of her life purpose and scientific vision.

How did your interest in science begin?

From an early age, I was surrounded by relatives with scientific & medical careers and encouraging teachers, I wanted to be a medical doctor. Later, the African Women in Agricultural Research and Development fellowship prompted me to consider how best to support women farmers, who play a major role in Africa's subsistence farming, as I explored transformative digital technologies.

Could you present your research and its practical applications?

I use machine learning to promote the detection and surveillance of small ruminant plague, an infectious disease found in animals such as sheep and goats. My ambition is that government agencies and extension officers would be able to report findings using mobile phones in near real time, enabling them to map incidences and optimize resources to control disease outbreaks more effectively. I feel connected to women smallholder farmers and excited to contribute towards bridging the digital divide. I dream of emerging technologies being embraced as a force for good to strengthen Africa's food production systems and nourish its growing population.

What does being a woman in science mean to you?

There will be a paradigm shift in the near future, as more women scientists act as role models for young girls and share scientific knowledge with their families.

> *"I dream of emerging technologies being embraced as a force for good to strengthen Africa's food production systems."*

Grace Umutesi

RWANDA

Doctoral student in Implementation Science

LABORATORY: KENYA SINGLE-DOSE HPV-VACCINE EFFICACY (KEN SHE) STUDY
INSTITUTION: UNIVERSITY OF WASHINGTON, SEATTLE, UNITED STATES OF AMERICA

Promoting women's health through improved HPV vaccination coverage

Grace Umutesi is a Ph.D. student leveraging implementation science to address gaps in health care services delivery in low- and middle-income countries. Originally from Rwanda, she is recognized for her work in preventing cervical cancer by highlighting the need to improve access to HPV vaccination in Kenya. Despite the challenges she faced, she pushes to pursue her dream of contributing to good health and wellbeing for all.

How did your interest in science begin?

My interest in science took root in my childhood, when I observed the pain and loss resulting from preventable illnesses in my family and community. Fueled by a desire to alleviate their suffering and improve their quality of life, I nurtured a profound curiosity for understanding the human body and the field of health sciences.

Could you present your research and its practical applications?

To help prevent cervical cancer, I'm investigating barriers and facilitators to HPV vaccination and assessing the acceptability of a single-dose HPV vaccination strategy among healthcare providers in Kenya. Ultimately, the goal is to provide valuable insights to inform strategies for promoting better stakeholder engagement, increasing awareness of the importance of HPV vaccination, and improving HPV vaccination coverage.

What does being a woman in science mean to you?

Throughout their careers, women scientists must overcome professional and academic hurdles while balancing domestic responsibilities and supporting their communities. I understood that persevering with this journey and succeeding would not only strengthen my own resilience but also serve as an inspiration to girls from humble beginnings, showing them that a career science is attainable. Women are the cornerstone of African societies, and represent an invaluable resource for solving the continent's most urgent health challenges.

> *"Women scientists must overcome professional and academic hurdles while balancing domestic responsibilities and supporting entire communities."*

Esther Uwimaana

UGANDA

Doctoral student in Molecular Biology

LABORATORY: MOLECULAR BIOLOGY LABORATORIES, BIOMEDICAL RESEARCH INSTITUTE
INSTITUTION: FACULTY OF MEDICINE AND HEALTH SCIENCES, STELLENBOSCH UNIVERSITY, SOUTH AFRICA

Exploring potential M. tuberculosis antigens to help in the fight against tuberculosis

As part of the collective efforts to address tropical diseases in Sub-Saharan Africa, Esther Uwimaana is conducting research on potential vaccines for tuberculosis. She is active in fund raising and in finding opportunities in science for women.

How did your interest in science begin?

I have always been curious to see how we can apply science to solve everyday challenges. This motivated me to consider new possibilities for girls from rural Uganda. I enjoyed biology, and during immunology lectures, I remember being fascinated by how the host defends itself against pathogens and how pathogens subvert immune responses.

Could you present your research and its practical applications?

I'm examining the potential of *Mycobacterium tuberculosis* antigens as vaccines against tuberculosis. This involves priming human immune cells with mycobacterial proteins and peptides, followed by challenging the human cells with bacteria and observing whether these cells kill the bacteria. My findings could be used to develop effective vaccines to keep people safe from tuberculosis and contribute to the fight against infectious diseases.

What does being a woman in science mean to you?

I feel privileged – it is an amazing opportunity for me to inspire girls in my village, showing them that a career in science is possible. The increase in opportunities for women is gradually breaking societal norms, however we still need to convince African families of the value of girls' education, create more role models and enable women scientists to work free of inequality and discrimination.

> *"It's an amazing opportunity for me to inspire girls in my village, showing them that a career in science is possible."*

West Africa

Temitope Abiola

NIGERIA

Doctoral student in Biochemistry

LABORATORY: ENVIRONMENTAL BIOTECHNOLOGY
INSTITUTION: REDEEMER'S UNIVERSITY

Leveraging metabolic engineering to improve the efficiency of biodiesel

Temitope Abiola is a doctoral student from Nigeria conducting biochemistry research to help develop more sustainable, renewable and higher quality biodiesel. She has worked hard to achieve a balance between life and scientific research, relentlessly pursuing her dreams as a versatile and dynamic woman in science.

How did your interest in science begin?

I have always been passionate about science since my childhood. I am inquisitive by nature and I love reading. My parents, particularly my father and high school teachers, believed in me and gave me the support and encouragement I needed to succeed as a young student. I'm passionate about imparting knowledge to others and making a positive contribution to the next generation.

Could you present your research and its practical applications?

My research is centered on the metabolic engineering (optimizing genetic and regulatory processes within cells) of oleaginous organisms for the production of enhanced lipids (oily molecules or fatty acids that can be used as raw materials for biodiesel production). When engineered organisms are employed as feedstocks, biodiesel of higher quantity and quality can be produced. Large scale production of biodiesel will ultimately contribute to the socio-economic development of my country, as it is eco-friendly, renewable and biodegradable compared to fossil fuel.

What does being a woman in science mean to you?

Identifying ways to break new grounds in research and continuously seeking more knowledge and skills, while striving to create a balance between science and other spheres of life. Equality is needed to provide an enabling environment for more women to advance in science, starting with greater opportunities for girls to pursue science and build confidence through talks, scholarships and mentorship programs.

> *"I'm passionate about imparting knowledge to others and making a positive contribution to the next generations."*

Ini Adinya

NIGERIA

Post-doctoral student in Applied Mathematics

INSTITUTION: UNIVERSITY OF IBADAN

Harnessing mathematics to optimise investments

Ini Adinya is awarded for her work to clarify the performance and benefits of investments. In Nigeria, she has overcome discrimination in the workplace and persevered to raise funds to continue her studies. Ini is passionate about the role of women in science and the importance of developing more female talent in the research world.

How did your interest in science begin?

I ventured into sciences in high school, however, my physics and mathematics teachers reinforced my interest with their dynamic, engaging approach. My objective is demystifying mathematics by applying it to real life. It will be a dream come true for me, if science can nib negative realities in the bud. For instance, foreseeing global disasters such as climate change and creating preventive measures to help save lives.

Could you present your research and its practical applications?

I'm combining mathematics, finance and computing to investigate financial models with discontinuities in the real options framework for the valuation of investments. I'm seeking to determine the dynamics of stochastic variables and appropriate numerical and analytical tools for solving derived models.

What does being a woman in science mean to you?

It's both challenging and interesting. Women are significant and should be fully involved in science. Despite the challenges of work-home balance, discrimination, harassment and hostile working environments, they are making giant strides and have found their way to the top in many scientific fields. With large populations of women in most African countries, empowering more women to enter science will lead to more rapid and sustainable development.

> *"Empowering more women to enter science will lead to more rapid and sustainable development."*

Bernice Konadu Agyeman

GHANA

Doctoral student in Environmental Sciences

LABORATORY: ALPHA AND GAMMA SPECTROMETRY LABORATORY, RADIATION PROTECTION INSTITUTE
INSTITUTION: GHANA ATOMIC ENERGY COMMISSION

Improving drinking water quality in Ghana

Bernice Konadu Aygeman is awarded for exploring drinking water quality in Ghana, with a view to enabling policymakers to address the risks of waterborne diseases. She has overcome funding challenges and a lack of scientific equipment with support from donors, NGOs and other stakeholders. This is the beginning of her journey to help solve environmental challenges in Africa.

How did your interest in science begin?

Science gives hope for the future. I enjoyed studying diverse scientific subjects at school and was inspired by the natural world. The dream of improving water quality drew me into pursuing a career in science, and I was inspired by seeing women scientists rising up to accomplish important discoveries.

Could you present your research and its practical applications?

I'm assessing drinking water in Ghana for physico-chemical parameters, microbial quality, heavy metals and radiological content, and predicting the effect on people's health. My findings will inform guidelines on waterborne disease such as typhoid and cholera, and ultimately contribute to addressing Africa's sustainable development agenda. I dream of being an environmental scientist who creates a positive impact.

What does being a woman in science mean to you?

Women stand to play a vital role in global sustainability and development when empowered through opportunities in science, innovation and technology. We must challenge the stereotypes that confine women's progress, build their self-confidence and encourage more girls to enter science by highlighting the achievements and journeys of enterprising women scientists.

> *"My findings will inform guidelines on establishment for the control of waterborne disease and ultimately contribute to addressing Africa sustainable development agenda."*

Mary Amoako

GHANA

Post-doctoral researcher in Nutrition and Dietetics

LABORATORY: HUMAN GENETICS AND GENOMICS LABORATORY
INSTITUTION: KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KNUST)

Exploring how nutrition stands to impact birth deformities

Dr. Mary Amoako is exploring how diets and nutrition influence the possibility of babies developing orofacial clefts (OFC), facial malformations occurring early in pregnancy and contributing to perinatal deaths. After completing her Ph.D. at Michigan State University, she founded a nutrition and lifestyle business in Ghana providing advice to Ghanaians especially women. She dreams of helping vulnerable populations to improve their health by eradicating malnutrition.

How did your interest in science begin?

I was born into a family where everyone studied science. I was inspired by my brothers and we often discussed scientific topics at home. To overcome the challenges of being a girl in science and gain the confidence to pursue science at a higher level, I attended gender empowerment workshops such as the Science, Technology and Mathematics Education (STME) clinic for girls.

Could you present your research and its practical applications?

To help address the issue of children being born with orofacial clefts, I am exploring the relationship between periconceptional maternal dietary patterns, multivitamin use and levels of folate in the blood. I am comparing case and control mothers to identify potential OFC risks. My findings will inform prevention strategies, nutrition counseling and education, breaking barriers in Ghana, where collaboration between human genetics and nutrition is novel, and improving reproductive health among women.

What does being a woman in science mean to you?

A renowned educationist in Ghana once said: 'If you educate a woman, you educate the whole nation'. I'm striving to bring a positive impact to as many lives as possible in my community and country. Women bring creativity to the field of science, and it will be phenomenal to encourage more women scientists in Africa.

> *"Women bring creativity to the field of science, and it will be phenomenal to encourage more women scientists in Africa."*

Dorcas Atibilla

GHANA

Doctoral student in Medical Entomology

LABORATORY & INSTITUTION: CITY OF NEW ORLEANS MOSQUITO, TERMITE AND RODENT CONTROL BOARD LABORATORY, NEW ORLEANS, UNITED STATES OF AMERICA

Shining a light on mosquito behaviour in the fight against malaria

Dorcas Atibilla is rewarded for her work to help fight malaria in Ghana and beyond by better understanding mosquito behavior, disease transmission, and insecticide resistance. Mentorship has been instrumental in shaping her path, together with professional networks and active fundraising to support her studies.

How did your interest in science begin?

My personal experience of malaria and witnessing its impact on individuals and communities motivated me to push the boundaries of scientific exploration. I was fortunate that my parents gave us equal opportunities for a good education, my father encouraged me to cultivate an interest in mathematics, which inspired me to excel at high school.

Could you present your research and its practical applications?

Through my research, I aim to understand the mechanisms behind mosquito vector behavior in Ghana's Middle Belt, their adaptation to insecticides, and factors influencing the transmission dynamics of malaria. Ultimately, my findings will contribute to innovative tools to manage vectors and combat malaria more efficiently, while reducing its burden. I dream of a multi-disciplinary, groundbreaking solution to tackle insecticide resistance in malaria vectors and drug resistance in the malaria parasite.

What does being a woman in science mean to you?

Demonstrating resilience and determination in the face of gender bias, underrepresentation, work-life balance and a lack of mentorship. Despite these obstacles, women scientists are contributing significantly and rising to become influential leaders. Promoting gender equality is crucial to fostering an inclusive and diverse scientific community and encouraging innovation. With a strong connection to their communities, women scientists are better placed to address our continent's great challenges in a culturally sensitive manner.

> *"Promoting gender equality is crucial to fostering an inclusive and diverse scientific community and encouraging innovation."*

Pamela Borges

CABO VERDE

Post-doctoral researcher in Oncology

LABORATORY: MOLECULAR BIOLOGY
INSTITUTION: AGOSTINHO NETO UNIVERSITY HOSPITAL

Advancing research in breast cancer through gene research

Dr. Pamela Borges is a post-doctoral student from Cabo Verde specializing in oncology. She is rewarded for her pioneering research into the prevalence of hereditary gene mutations among breast cancer patients. She has persevered with building a career in science despite a lack of resources and infrastructure in her country, through seeking funding and fellowships from international sources.

How did your interest in science begin?

As a naturally curious person with a longstanding passion for science and problem-solving, I fully realized the potential of scientific research to promote sustainable development through my doctoral research. This inspired me to use my knowledge and skills to investigate more about cancer and build a stronger foundation for scientific exploration in my country.

Could you present your research and its practical applications?

In Cabo Verde, cancer is the second most common cause of death, however little is known about the disease. I am collecting in-depth information from more than 500 breast cancer patients in order to characterize prevalent hereditary gene mutations and develop a breast cancer genomic surveillance program, promoting early diagnosis and saving more lives. My findings will also inform public health policy.

What does being a woman in science mean to you?

Promoting diversity and inspiring future generations of women to conduct research despite the obstacles. To harness the vast untapped potential of Africa's women, we must continue to highlight the work of inspiring women scientists and advocate for policies that promote inclusive learning. Embracing diversity in science is a matter of social justice. It will create a more resilient scientific community capable of advancing know-ledge and innovation to resolve the world's great challenges. Step by step, we will build the future we want.

> *"Embracing diversity in science is a matter of social justice."*

Kafayath Fabiyi

BENIN

Doctoral student in Bacteriology and Virology

LABORATORY: RESEARCH UNIT IN APPLIED MICROBIOLOGY AND PHARMACOLOGY OF NATURAL SUBSTANCES
INSTITUTION: POLYTECHNIC SCHOOL OF ABOMEY-CALAVI, UNIVERSITY OF ABOMEY-CALAVI

Leveraging genomic science to overcome bacterial resistance

Kafayath Fabiyi is renowned for her groundbreaking research on bacterial resistance. Her overarching goal is to safeguard vulnerable communities in Africa and around the world from infectious diseases. In Benin, she passionately balances her research commitments with her family life, charting a course to excellence through her unwavering scientific rigor and unrelenting determination to thrive. She is authoring high cutting-edge research papers and community involvement's activities.

How did your interest in science begin?

My passion for science was ignited by a childhood tragedy—the loss of my uncle to an undiagnosed illness. After completing my bachelor's degree, I pursued a career in biomedical analysis with the overarching goal of making a significant impact on health challenges. It didn't take long for me to become captivated by the field of microbiology and the study of bacterial resistance. My ultimate vision is a world where infectious diseases are effectively managed, and access to healthcare is a universal reality for everyone.

Could you present your research and its practical applications?

My research interests center around exploring the genomic diversity of multi-resistant bacteria isolated in Benin and conducting biocontrol trials using bacteriophages. The outcomes of my research will empower me to compile a comprehensive repository of virulent phages that are highly effective against multi-resistant bacteria responsible for various infections.

What does being a woman in science mean to you?

Dedicated to a scientific career, regardless of the challenges, and committed to advancing research and innovation despite gender-related hurdles. We must dismantle patriarchal attitudes, combat harassment, and foster the emergence of more female role models in Africa. Diversity serves as a catalyst for innovation and excellence. When women are actively engaged at every echelon of scientific research, their presence will catalyze the development of more creative and effective solutions to the scientific and social challenges facing our continent.

> *"I envision a world where infectious diseases are effectively managed, and access to healthcare becomes an accessible reality for everyone."*

Jedidah Jacob

NIGERIA

Doctoral student in Conservation Biology

LABORATORY: DEPARTMENT OF ZOOLOGY
INSTITUTION: UNIVERSITY OF JOS

Conserving the plants and pollinators of the Nigerian savanna

Jedidah Jacob is awarded for her work to conserve plants and pollinators in the Nigerian savanna. She has experienced challenges such as a lack of resources and funding for her research project, which obliged her to adapt her methodology. At a personal level, her family sold their land to finance her MSc.

How did your interest in science begin?

My love for nature, particularly flowers, butterflies and birds initiated my interest in science from an early age. I was encouraged by my father and had exceptional female biology and geography teachers. My interest solidified after I learnt about forest ecology and regeneration, seed dispersal and pollination, during a six month internship with the Nigerian Montane Forest Project in 2010. I look forward to a future where people and nature co-exist sustainably.

Could you present your research and its practical applications?

My research explores pollinator community structures (such as species richness, distribution and abundance), and seeks to explain how plants and pollinators interact in different habitats and seasons in the Nigerian savannah. This could be through network connections, specialization, nestedness and robustness. Finally, it assesses the contribution of pollinators to the quantity and quality of cultivated fruits.

What does being a woman in science mean to you?

In Nigeria, where families are highly traditional being a woman in science means looking after the family while pushing to grow your career and make a global impact. If women are given equal opportunities and resources, they will be as productive as men, if not more, delivering creative innovations for everyone's benefit. Girls must learn about prominent women scientists at school and discover how they can apply science to conserve the environment and promote a fairer world.

> *"I look forward to a future where people and nature co-exist sustainably."*

Aderonke Korede

NIGERIA

Doctoral student in Agricultural Biotechnology and Food Biotechnology

LABORATORY: FOOD CHEMISTRY LABORATORY, DEPARTMENT OF FOOD SCIENCE
INSTITUTION: LADOKE AKINTOLA UNIVERSITY OF TECHNOLOGY

Exploring the health benefits of natural ingredients

Aderonke Korede is rewarded for her chemistry research into the health benefits of shea olein. Based in Nigeria, she has overcome a lack of female role models and discriminatory policies to progress as a woman in science. Aderonke has been encouraged by her Ph.D. supervisor. She is 'climbing on her shoulder' to see the world of science.

How did your interest in science begin?

My interest really emerged when I took a food chemistry course at college. I was hooked by seeing chemistry evolve in every branch of science. This prompted my studies in food science and technology, with a focus on the health benefits of ginger-turmeric fortified shea olein (a natural emollient).

Could you present your research and its practical applications?

Ginger and turmeric oleoresins contain a mixture of bioactive compounds that contribute to their flavor and potential health benefits. Their incorporation into shea olein will yield new products with improved sensory properties and shelf-life, leading to food innovations that deliver additional health benefits beyond nutrition, analytical chemistry, packaging and storage technology.

What does being a woman in science mean to you?

I'm overcoming stereotypes, proving that women can be as successful as men in improving the lives of millions of people. We need to empower women to access education and research, provide equal opportunities and celebrate their accomplishments, building their confidence to pursue their ambitions. Gender equality in research will bring a different perspective, more focus on the needs of marginalized communities and a more inclusive society. When women are able to participate fully in science, the fruits of scientific advances will be shared more fairly.

> *"When women are able to participate fully in science, the fruits of scientific advances will be shared more fairly."*

Emma Edinam Kploanyi

GHANA

Doctoral student in Epidemiology

LABORATORY: DEPARTMENT OF EPIDEMIOLOGY
INSTITUTION: SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA

Taking strategic action to eliminate hepatitis B and C in Ghana and beyond

Emma Edinam Kploanyi is awarded for her research on interventions for the prevention, testing and treatment of viral hepatitis B and C in Ghana. She is also contributing to the country's wider plans to eliminate epidemics from these diseases. Emma is determined to follow her chosen path and is supported by dedicated mentors.

How did your interest in science begin?

I was interested from an early age, as my teachers at school delivered science lessons in an interesting manner. My passion for research was ignited during my first undergraduate internship at a biomedical research institute. I dream of helping to eliminate viral hepatitis as a public health threat and improving patient outcomes.

Could you present your research and its practical applications?

My research describes how hepatitis B and C patients progress through the various stages of care at treatment facilities and identifies opportunities for improvement. It also assesses Ghana's implementation of five interventions proposed for eliminating viral hepatitis B and C epidemics by 2030. My findings will help address barriers to accessing care and provide evidence for the development of a national elimination plan.

What does being a woman in science mean to you?

It's exciting to be one of the women making a difference in the world of science. It provides a unique opportunity to contribute to improving quality of life through evidence-based scientific research. Gender equality is vital to promoting sustainable development, and the more women are involved in science, the greater their influence in creating a positive impact in their families and beyond.

> *"I dream of helping to eliminate viral hepatitis as a public health threat and improving patient outcomes."*

Fatou Lo Niang

SENEGAL

Doctoral student in Artificial Intelligence

LABORATORY: DIGITAL AND COMPUTER ANALYSIS LABORATORY
INSTITUTION: GASTON BERGER UNIVERSITY

Leveraging machine learning to help prevent cardiovascular pathologies in Africa

Fatou Lo Niang is rewarded for her efforts to leverage machine learning and artificial intelligence to improve outcomes for cardiovascular diseases. Based in Senegal, she moved away from her community to study, and has been greatly encouraged by her tutor, whose dynamic teaching has inspired her to pursue excellence in her studies.

How did your interest in science begin?

I've always been fascinated by science and I couldn't see myself doing anything else. I was impressed by natural science classes in college. Later, I realized that I could leverage computer science to make a positive contribution to society.

Could you present your research and its practical applications?

Through my research, I focus on using machine learning to better manage and help prevent cardiovascular pathologies in Africa, where the use of artificial intelligence in medicine is relatively limited.

What does being a woman in science mean to you?

The distinction encourages me to pursue my scientific journey and be a role model for girls, while reinforcing my belief that it is possible for women in Africa to succeed in science. We must remove the cultural barriers that prevent girls from pursuing good education and following their dreams. Women play an important role in society and stand to contribute significantly to sustainable development.

> *"We must remove the cultural barriers that prevent girls from pursuing good education and following their dreams."*

Rahimat Yakubu

NIGERIA

Doctoral student in Electrical and Electronic Engineering

LABORATORY: ENGINEERING EDUCATION PROJECT (KEEP)
INSTITUTION: KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY (KNUST), GHANA

Advancing clean energy in Nigeria's universities and hospitals

Rahimat Yakubu is rewarded for her work in advancing clean energy research in Nigeria, helping to expand access to solar technology in towns and rural communities, thereby enabling more people to improve their health, education and economic prospects.

How did your interest in science begin?

My interest in science was sparked in elementary school when my teacher demonstrated how to power a light bulb using batteries. Later, the challenge of achieving reliable access to electricity in Nigeria inspired me to pursue a degree in Electrical Engineering. And after giving birth to my son around 2.30am in a hospital without electricity, I realised the importance of clean energy and determined to use my skills to address the energy crisis in schools, hospitals and rural communities.

Could you present your research and its practical applications?

I focus on the technical design, modeling and simulation of diverse solar PV systems, including those mounted on the ground, floating on water or using solar trackers. Floating PV Systems help to reduce the amount of land needed for solar arrays and lower water evaporation. Meanwhile, bifacial PV modules create up to 10-30% more power than conventional panels. My work is contributing to the Nigerian government's ambitions to bring clean, sustainable energy to universities and hospitals across the country.

What does being a woman in science mean to you?

Being a change-maker - developing new technologies to help people in developing countries. We must encourage girls in Africa into science by leveraging more mentors to combat gender stereotypes and overcome cultural barriers, enabling them to pursue their dreams. With more diverse perspectives, we are more likely to come up with innovative solutions to the continent's great challenges.

> *"We must encourage girls in Africa into science by leveraging more role models and mentors to combat gender stereotypes and overcome cultural barriers, enabling them to pursue their dreams."*

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