SUB-SAHARAN AFRICA

# *YOUNG TALENTS AWARDS*

For Women in Science

FONDATION L'ORÉAL

## Faouziath SANOUSSI

### Post-doctorate, Agricultural Sciences

Faculty of Agricultural Sciences, University of Abomey-Calavi (Benin)

Faouziath Sanoussi is carrying out her work in agricultural biotechnology in order to enhance the value of Benin's food crops and contribute to the fight against malnutrition in Africa. She seeks to develop a new millet-based product with high nutritional value, fortified with baobab fruit pulp and moringa leaf powder. She is convinced that in the context of the Covid-19 pandemic, local products are one of the keys to enhancing the immunity and health of populations.

## LaToya SEOKE

### PhD student, Biological Sciences

ARC-Onderstepoort Veterinary Institute, University of Pretoria (South Africa)

LaToya Seoke is focused on the development of diagnostic tools to detect the foot-and-mouth disease virus, which is highly present in goats in southern Africa. The control and possible eradication of the disease, considered as the most important livestock disease on the continent from a financial perspective, would have a significant impact on the economies of many Sub-Saharan African countries. Through her research, she hopes to contribute more generally to the eradication of infectious diseases in Africa.

## Tsaone TAMUHLA

### PhD student, Computer and Information Science

Computational Biology, University of Cape Town (South Africa)

Tsaone Tamuhla is collecting clinical and genetic data to better understand the emerging pandemic of type 2 diabetes in Africa. Given that most research has focused on the role of lifestyle in the occurrence of the disease, the genetic factors in African populations are still poorly known.

## Agnès Antoinette NTOUMBA

### PhD student, Biological Sciences

Laboratory of Animal Biology and Physiology, University of Douala (Cameroon)

Agnès Antoinette Ntoumba is developing bio-insecticides against a species of larvae (*Anopheles gambiae*), using nanoparticles from plants endemic to Cameroon. Because of the many cases of resistance observed after the use of chemical insecticides, she is convinced that it is urgent to explore new research avenues via green synthesis, in order to harness the African flora potential, while producing cheaper and more environment-friendly insecticides.

**Comoros**

## Younoussa HAIFAOU

*PhD student, Medicine*

Laboratory of the National Blood Transfusion Center,
Cheikh Anta Diop University, Dakar (Senegal)

Younoussa Haifaou has specialized in the identification of chromosomal and molecular abnormalities associated with disorders of sex development during the prenatal and postnatal period in Senegal, in order to refine the surgical treatment of the patients concerned. Convinced that African research is penalized by the lack of funding and cutting-edge laboratories and equipment, she hopes to help change mentalities so as to generate more investment in this sector.

**Congo**

## Dominique Fatima VOUMBO MATOUMONA

*Post-doctorate, Health Sciences*

International Centre of Medical Research of Franceville (CIRMF, Gabon),
Faculty of Sciences and Technology, Marien Ngouabi University,
Brazzaville (Republic of the Congo)

Dominique Fatima Voumbo Matoumona is leading several research projects on malaria, especially on the resistance of the parasites that cause this disease (*Plasmodium falciparum*) to existing antimalarial treatments. She considers that traditional pharmacopoeia is not sufficiently exploited, particularly in Central Africa, and aims to set up a research laboratory based on the herbal treatment of communicable and non-communicable diseases.

**DRC**

## Nadège TATY

*PhD student, Earth and Environmental Sciences*

Governance, Risk, Environment and Development Laboratory (GRED),
University Paul Valéry Montpellier 3 (France), Research and Training Unit on the Ecology and Control of Infectious Diseases (URF-ECMI), University of Kinshasa
(Democratic Republic of the Congo)

Nadège Taty's research seeks to diagnose health zone vulnerabilities and better understand the governance of infectious disease epidemics (such as cholera, Ebola or Covid-19) in resource-scarce countries. Her cross-cutting and multidisciplinary project is one of the first to attempt a methodological transfer of the diagnosis of health zone vulnerabilities, initially developed for natural risk management, to epidemic risk management.

**Ethiopia**

## Martha Kidemu NEGASSA

*PhD student, Earth and Environmental Sciences*

Haramaya Soil Laboratory, University of Haramaya (Ethiopia)

Martha Kidemu Negassa is mapping the spatial and temporal dynamics of organic carbon from soil and water, available in smallholder farming systems in the arid areas of eastern Ethiopia. Her objective is to update information on the status of organic carbon stock, which would contribute to making informed decisions for more appropriate management of soil and water resources and, ultimately, combating climate change.

## Ghana

### Esther Eyram ASARE YEBOAH

*PhD student, Biological Sciences*

Antimicrobial Research Unit, University of KwaZulu Natal, Durban (South Africa)

Esther Eyram Asare Yeboah focuses her research on a category of bacteria (multi-drug resistant Gram-negative pathogens), which she is studying in patients in a teaching hospital in Ghana. Her objective is to identify resistance genes to these bacteria in order to gain better understanding of their functioning. She is also a lecturer at a school of pharmacy, where she promotes scientific subjects among her students, especially young girls.

## Madagascar

### Tsarasoa Malala ANDRIANINARIVOMANANA

*PhD student, Biological Sciences*

Medical Entomology Unit, Institut Pasteur in Madagascar, Antananarivo (Madagascar)

Tsarasoa Malala Andrianinarivomanana is studying *Anopheles coustani*, a mosquito species recently suspected of transmitting malaria on a large scale in Sub-Saharan Africa. Convinced that the role of women scientists is essential to overcome the major challenges facing Africa, she advocates for greater representation and visibility of women researchers who serve as true role models for future generations.
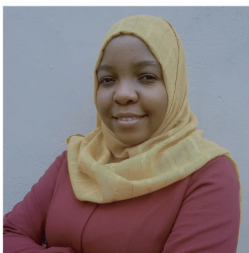
## Madagascar

### Zara RANDRIAMANAKOTO

*Post-doctorate, Physics*

Division of Sciences, South African Astronomical Observatory (SAAO), Cape Town (South Africa)

Zara Randriamanakoto is one of the few women astrophysicists in Madagascar. She is studying star clusters within galaxies where star formation activity is particularly intense. Her objective is to quantify the influence of the surrounding environment on star clusters' disruption mechanisms. Besides being strongly involved in mentoring and promoting women in science, she supervises male and female students in astrophysics and astronomy at the University of Antananarivo.

## Malawi

### Halima TWABI

*PhD student, Mathematics*

Laboratory of Mathematics, University of Malawi (Malawi)

With a specialization in biostatistics, Halima Twabi is conducting research on child and maternal health. She wants to develop statistical methods providing better insight into the consequences of maternal HIV on the development of a pregnancy and then on the future child (stunting, wasting, among others...). Halima Twabi also wants to establish a correlation between the plurality of factors (external and internal), in order to make a more accurate diagnosis of the causes of these pathological conditions.

## Mauritius

### Devina LOBINE

*Post-doctorate, Basic Medicine*

Faculty of Medicine and Health Sciences, University of Mauritius, Moka (Mauritius)

Devina Lobine is studying inhibitors from traditionally used medicinal plants, as therapeutics for the treatment of Alzheimer's disease. To do so, she uses the molecular, pharmacological and neuroprotective properties of medicinal plants traditionally used on the island. Besides being actively involved in various associations for the promotion of STEM[1] and bio-innovation in Africa, she is a *Next Einstein Forum* ambassador.

## Nigeria

### Adekemi ADESULU

*Post-doctorate, Biological Sciences*

Food Science and Technology Laboratory, Bowen University, Iwo (Nigeria)

Adekemi Adesulu has specialized in environmental genomics: she is interested in the analysis of the microbial composition of raw milk and traditional dairy products in Nigeria. Through her research, she hopes to help ensure the safety and quality of African fermented foods.

## Nigeria

### Ibukunoluwa Adetutu OLAJIDE

*PhD student, Electrical Engineering, Information Engineering*

Department of Electrical and Electronics Engineering, Federal University of Technology, Akure (Nigeria)

Ibukunoluwa Adetutu Olajide's research aims to develop an optical communication model capable of reacting to the specific climatic conditions of tropical areas, using predictive algorithms. More broadly, she hopes that her research in the field of engineering will lead to the establishment of efficient communication networks and the development of reliable power supply on the continent.

## Rwanda

### Valentine DUSHIMIYIMANA

*PhD student, Health Sciences*

Rwanda Biomedical Centre, Kigali (Rwanda), University of Cape Town (South Africa)

Valentine Dushimiyimana is seeking to develop a predictive tool that can assess the risk of cardiovascular disease in HIV patients in Rwanda. She hopes to set up in her country a clinical research program that could lead to better preventive management of cardiovascular diseases, in connection with antiretroviral therapy.

[1] Science, Technology, Engineering, and Mathematics.

## Doaa ALI

### PhD student, Chemistry

Laboratory of medicinal chemistry, University of Cape Town (South Africa)

Doaa Ali is working on the development of new cancer treatments using a groundbreaking synthetic methodology based on garlic-like compounds (organotrisulfides), which are able to fight cancer cells. She hopes to become a professor of medicinal chemistry and thus help increase the proportion of women scientists in senior research positions in Africa.

## Maha DAHAWI

### PhD student, Biological Sciences

Joint programme of the Faculty of Medicine, University of Khartoum (Sudan) and Brain and Spine Institute (ICM), Sorbonne University (France)

Maha Dahawi is working on the identification of genes responsible for genetic generalized epilepsies (GGEs) among Sudanese families where consanguinity is present. Her research has made it possible to detect among this population the presence of a behavioural phenotype specific to certain epilepsy-related genes. Furthermore, she strives to help young women at the beginning of their careers in science to overcome some obstacles specifically encountered by women scientists, in research, through a training course she developed, called *Pay It Forward*.
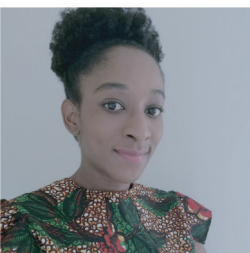
## Neema MDUMA

### PhD student, Information and Communication Sciences and Engineering

CoCSE Laboratory, The Nelson Mandela African Institution of Science and Technology, Arusha (Tanzania)

Neema Mduma is addressing the issue of student dropout in secondary schools in Tanzania, using a Machine Learning model. Deployed via a web-based application, this model allows teachers and parents to identify and provide support to students in a situation of academic fragility. In the medium term, she would like to use Machine Learning to help improve health care in countries affected by a shortage of medical staff.

## Hannah SIMBA

### PhD student, Health Sciences

Division of Community Health, Stellenbosch University (South Africa)

Hannah Simba is studying the role of genetic and environmental factors on esophageal cancer, one of the most aggressive cancers in the world and also one of the least studied in Africa (whose countries are among the most affected by this disease, along with China). She is also dedicated to mentoring and providing guidance to African girls in their studies, and considers it essential for the future of the continent that they are able to realize their potential, including in scientific careers.