OnePlanet FELLOWSHIP

Building a robust pipeline of scientists leading climate change research in Africa

Candidate Profile

Nogaye Niang

2020 One Planet Laureate Candidate

Position

Postdoctoral Student

Institution

Cheikh Anta Diop University in Dakar

Country

Senegal

Education

PhD, Microbial and Plant Biotechnologies and Plant Improvement, Cheikh Anta Diop University in Dakar (UCAD), Senegal

Mentor

Mame Farma Ndiaye, Agroecology and Soil Fertility Management, Senegalese Institute of Agricultural Research (ISRA)

Research Area

Plant and microbial biotechnology, plant improvement, and, particularly, bio fertilization and the restoration of degraded soil, using plants or rhizosphere microorganisms (symbiotic and/or non-symbiotic bacteria).

Nogaye Niang was born in 1982 in Tivaouane, a holy city in the Thiès region, and comes from a farming family. Her father worked as a farmer and tailor to provide for his family. When Nogaye obtained her Scientific High School Diploma in 2003, she wanted to work in medicine. Still, to her great disappointment, she was pointed in the Faculty of Science and Technology direction at the Cheikh Anta Diop University in Dakar (UCAD). Her older sister, already at the Faculty of Science and Technology, was encouraged, so it is hardly surprising that the younger sibling also chose this field.

Between 2004 and 2009, she obtained a Bachelor's degree and a Master's in Natural Sciences and studied for a Master's II in Plant and Microbial Biotechnology in 2011. She was inspired by her Master's topic and was introduced to research through the study of mycorrhizal fungi, using morpho-anatomical and molecular tools. "I told myself that I had to continue along the same path to achieve my goals: to understand the role of microorganisms in soil functioning and hydro-mineral nutrition of plants," she explains.

Nogaye had begun to develop a passion for agriculture. She realized that she had unconsciously inherited her parents' love of the land. She recalls always wanting to help farmers and small-scale producers because they desperately lack financial and technological resources. Poorly trained and ill-equipped, farmers put their businesses at risk by, among other things, overusing chemical fertilizers in the hope of improving their yield.

These improper practices have harmful effects on soil quality. Although farming does not generate much profit in Senegal, most of the population works in agriculture, all in rural areas.

According to Nogaye, sustainable development involves introducing sustainable agricultural practices that promote healthy ecosystems and sustainable land management.

Nogaye's research commits to improving yields while minimizing environmental damage, using biotechnological and microbiological tools to meet farmers' needs.

After obtaining her Master's II degree, Nogaye lacked funding, and her hopes of studying for a Ph.D. were dashed. However, in 2013, through a mutual contact, she was offered a scholarship and grant. As part of her thesis, she completed two internships at the Ampère laboratory in Lyon, financed by the Cooperation and Cultural Action Service (SCAC) of the French Embassy in Senegal.

In 2018, she obtained her Ph.D. in Microbial and Plant Biotechnologies and Plant Improvement.

Nogaye's research focuses on plant and microbial biotechnology and plant improvement. Her research research commits to improving yields while minimizing environmental damage, using biotechnological and microbiological tools to meet farmers' needs.

Her thesis research was based on the structural and functional characterization of bacterial communities associated with P. reticulatum (DC.) Hochst in two contrasting areas of Senegal. Her findings demonstrated a significant improvement in the growth of Piliostigma reticulatum shrubs following bacterial inoculation with two isolated native strains.

Today, her research work is predominantly focused on plant and microbial biotechnology and plant improvement. She is particularly interested in bio fertilization and the restoration of degraded soil using plants or rhizospheric microorganisms (symbiotic and/or non-symbiotic bacteria).

This method is a technological innovation that reduces nitrous oxide emissions by applying nitrogen fertilizer, thus ensuring sustainable food security. She is driven by the need to help mitigate the effects of climate change in an environment where production is threatened by irregular rainfall, water scarcity, drought, soil impoverishment and degradation, and greenhouse gas emissions linked to the mass use of fertilizers.

She heard about AWARD's One Planet Fellowship from former Laureates at her research institute. Through the Fellowship's training, Nogaye expects to broaden her scientific skills and discover new forms of technology. Furthermore, her goal is to become an authoritative leader by improving her self-confidence to lead effectively, influence people, and assert herself in this complex research environment.

Through the Fellowship's mentoring, she is confident that she will receive multi-level support to succeed in scientific research, acquire knowledge, network with experts, and develop a partnership for her institution.

Her goal is to become an Associate Professor. She has been a part-time lecturer at the Cheikh Anta Diop University in Dakar for four years while also working as a postdoctoral student in the joint microbiology laboratory. Nogaye plans to manage a research unit/ laboratory, based on a partnership of interest between the private sector and applied research experts, to support development, food security, and women food producers' businesses.

According to Nogaye, the main challenge for African researchers is funding-related, and in the majority of cases, it is often coupled with technological limitations. She has been a postdoctoral student since 2019, and the Covid-a9 pandemic has halted her field and lab work.

The sheer perseverance of this wife and mother and the encouragement and unfailing family support have enabled Nogaye to maintain a healthy work-life balance.

Nogaye Niang is one of the growing number of candidates selected to participate in the One Planet Fellowship. The One Planet Fellowship is a career development initiative that is building a robust pipeline of highly connected, inter-generational scientists equipped to use a gender lens to help Africa's smallholder farmers cope with climate change. The One Planet Fellowship is funded by the Bill &Melinda Gates Foundation, the BNP Paribas Foundation, the European Union and Canada's International Development Research Centre (IDRC). African Women in Agricultural Research and Development (AWARD) and Agropolis Fondation are jointly implementing the Fellowship.