



2009 AWARD Fellow
Bolanle Otegbayo

“I believe my research on the molecular composition of yam starches will have a lasting impact on the nutritional and food security status in my country.”

Position	Senior Lecturer
Institution	Department of Food Science and Technology Bowen University, Iwo, Nigeria
Country	Nigeria
PhD	Food Technology, University of Ibadan, Nigeria
Mentor	Prof. Omueti Deborah Olusola Director, Nutrition, Nigeria Heart Foundation
Research Area	Determining the food quality and industrial potential of Nigerian yams to contribute to the expansion and diversification of their use.

Dr. Bolanle Otegbayo has a yen for yams. This researcher is determined to help farmers capitalize on “the king of crops” as *Dioscorea* is known in her native Nigeria, which produces 68 percent of the world’s yam harvest (50 million tonnes).

Yams are more than a mere tuber to Nigerians, says Otegbayo. “Yams are intimately linked to our economic, social, and cultural life. For instance, a man must give yams as part of a bride’s dowry. And no ceremony is complete without a dish of pounded yams. Every farmer grows them,” explains Otegbayo, a lecturer at Bowen University in Nigeria.

Yam is the second most important root/tuber crop in Africa with production reaching just under one third the level of cassava. More than 95 percent (2.8 million ha) of the current global area under yam cultivation is in sub-Saharan Africa, where mean gross yields are 10 t/ha. Yams are consumed by 60 million people daily in Africa alone, but production of this traditional crop is threatened.

“Farmers are investing their small capital, but they aren’t making a profit because they can’t get their produce to market before its spoils,” says Otegbayo. “They can lose up to 30 or even 40 percent of their yam crops annually because they lack storage. We could be commercially producing and processing yams for export, but so little of that is happening.”

Otegbayo wants to break that unprofitable cycle by developing new yam products. “My current research is focused on determining the food quality and industrial potential of Nigerian yams that will contribute to expansion and diversification of their use,” she explains.

"I'm looking at how to make yam starch that could be used as a commercial thickener. I want to determine the molecular composition of yam starches and understand their functional properties. I believe this will have a lasting impact on the nutritional and food security status in my country."

In her university lab in Nigeria, Otegbayo lacked the equipment needed to investigate yam starches properly. She hoped to obtain a research grant to purchase equipment, but winning such funding is rare in developing countries. As an AWARD Fellow, she competed for a research attachment and won a three-month placement with the Food Technology Department at *Centre de coopération internationale en recherche agronomique pour le développement* (CIRAD) in Montpellier, France, which was funded by Agropolis Fondation.

Otegbayo was the first AWARD Fellow—and the first Nigerian—in the program, working under the supervision of Dr. Olivier Gibert. "Bolale contributed greatly to CIRAD as one of the world's leading scientists in yam and cassava research," he says. "She shared her networks and linked us to food researchers across Africa. We have profited from her presence."

With her research team in Nigeria, Otegbayo has characterized in detail 45 varieties of yam from five common species. This is the first characterization of a large variety of yams, which will serve as baseline data for future research and for selecting yam genotypes for specific end uses. Research has not yet been able to determine the molecular composition of yam starches. However, during advanced science training at CIRAD and the University of Nantes, France, Otegbayo carried out further analyses of the yam samples, leading to better understanding of the functional properties important for determining the industrial potential of yam starches.

Otegbayo recently became a Certified Food Scientist with the International Food Science Certification Commission. She wants to share the experience and knowledge that she gained through AWARD with junior colleagues, and has volunteered as an AWARD Mentor. "My vision is to be a transformational, inspirational leader—a goal setter, an achiever, and a builder of lives, who is worthy of emulation," reflects Otegbayo.

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