



2013 AWARD Fellow
Sonia Naidoo

Position	Master's Student
Institution	University of Pretoria, South Africa
Country	Mozambique
Fix	Agronomy, Eduardo Mondlane University, 2001
Mentor	Dr. Diana Marais, Senior Lecturer, University of Pretoria

Research area: Sweet potato genetic and molecular analysis for major agronomic traits.

Sonia Naidoo grew up in Maputo, Mozambique, raised by a wise aunt and uncle, who were committed to seeing that she got a university education. She was not fond of history or geography in secondary school, so she ended up taking science subjects. "I didn't want to be a medical doctor or a veterinarian, so this left me with agronomy as a choice" she recalls with a laugh. "I was familiar with agronomy since my grandma had a plot and I used to work with her there. I also had a vegetable garden as a child, and I actually liked dealing with plants." But it was only as an adult that she realized that agronomy was her true calling. Completing a BSc in Agronomy at Eduardo Mondlane University, she was the first member of her family to get a university degree.

Naidoo has since broadened her focus to include biotechnology tools for her master's degree, which gives her the opportunity to work in both plant production and plant science. As part of her program, she is engaged in a sweet potato breeding project, a partnership between the University of Pretoria and the Agricultural Research Council—Vegetable and Ornamental Plant Institute (ARC-VOPI). Her project involves establishing the genetic control of two important agronomic traits: yield and β -carotene, and finding molecular markers to be used in sweet-potato breeding at ARC-VOPI.

As part of the process, sweet-potato breeders select and cross cultivars with desirable characteristics in an attempt to create superior varieties. Selection of parental cultivars/lines at ARC-VOPI relies solely on the phenotypic performance of the lines. At present, no molecular markers are being used in the breeding of sweet potato. There is limited knowledge of the inheritance of traits such as β -carotene and yield. Recently, a number of cultivars were crossed with each other in every possible way in order to improve the yield and the levels of β -carotene. Those crosses are an integral part of Naidoo's master's project.

"My work focuses on analyzing the performance of the progenies of such crosses in different environments," Naidoo explains. "Although my background in agronomy is helpful, I have been learning valuable new skills." Her work is aimed at understanding the genetic mechanism by which a trait is inherited from parents

to progeny and finding molecular markers that can be used in sweet-potato breeding at ARC-VOPI. This knowledge will greatly advance the breeding of superior cultivars, which is beneficial for farmers and vulnerable communities. Cultivars that are high yielding and rich in β -carotene contribute to food security, poverty alleviation, and the fight against malnutrition in South Africa.

Naidoo is enjoying the intricacies of biotechnology tools applied to plant breeding. As part of her work at University of Pretoria, she is testing existing sweet-potato molecular markers called microsatellites or simple sequence repeats. These markers are able to fingerprint sweet-potato cultivars. "I first learned to extract DNA from the leaves, and it amazes me how much can be obtained from such a small portion of a leaf," she explains. "Once the cultivars are clearly fingerprinted, she intends to determine how they are related to each other. This will help her establish the correlation between cultivar relatedness and combining ability. The successful microsatellite markers will greatly assist in sweet-potato breeding at ARC-VOPI.

Naidoo is very concerned about vitamin A deficiency and malnutrition among children, and women of reproductive age in South Africa. "I would like to promote and advocate the advantages of cultivating sweet potatoes to farmers and consumers, most of whom are poor with few resources," she says. "I can see myself working with a breeder and applying the skills that I am learning."

Naidoo is excited to be back in the lab and studying again following a long hiatus. After she married and moved from Mozambique to South Africa, she could not work until she got her permanent residency status. "I decided to stay home with my children for a while, and it wound up being 10 years," she says. "I realized that I needed to get back to my profession, and I was delighted when I was offered a position at the ARC Bio-control Division in a volunteer capacity."

While at ARC, Naidoo met AWARD Fellow Damaris Odeny, a senior researcher, who was looking for a younger woman scientist to mentor at the time, as required by the AWARD program. Odeny chose to mentor Naidoo. "She rescued me. We worked together on defining my career goals, and developing a vision and taking ownership of it."

Odeny suggested that Naidoo go back to school for her master's degree and told her about available scholarships. "Because I stayed home for so long I was very shy and lacked self-confidence," Naidoo continues. "Damaris believed in me and helped me to believe in myself—that I could be technically competent. She looked for opportunities for me to be visible, and guided me. Although she is currently working in Kenya, her home country, she still checks up on me—we have become friends."

Naidoo looks forward to mentoring a young woman scientist herself, as an AWARD Fellow and is certain that AWARD will help her to enhance her science skills. "I am very grateful to be an AWARD Fellow and I plan to take full advantage of the excellent training available," she says. She sees her work as a calling. "I want to leave a mark on society, but I still have a lot to accomplish. The more I learn, the better I will do. If I can change just one person's life through mentoring or by being a role model, it will be an accomplishment."

Naidoo is one of a growing number of African women agricultural scientists who have won an AWARD Fellowship. AWARD is a career-development program that equips top women agricultural scientists across sub-Saharan Africa to accelerate agricultural gains by strengthening their research and leadership skills through tailored fellowships. AWARD is a catalyst for innovations with high potential to contribute to the prosperity and well-being of African smallholder farmers, most of whom are women.

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