

Flourishing to the Extreme



As a child, **Prudence Mutowo** could be found playing in the grass under the blistering sun of her hometown of Mutare, Zimbabwe, gazing at tiny insects, such as lady birds and red ants, in the palm of her hand. “Regardless of their minuscule size, they had perfectly formed legs and little heartbeats you could see as you held the insects,” she says. Her fascination with these petite life forms led her to study biology in high school in Zimbabwe, where classes on cell structure and function further sparked her interest in even smaller life forms.

What? Girls Don’t Do Science?

However, in high school in Zimbabwe, Prudence says, the common attitude was that “girls don’t do science.” Rather than letting this deter her though, it had the opposite effect and brought out the rebel in her: “That was it—I knew I had to do science!” she says. Her family, especially her mother, were highly supportive of her academic choices, and always encouraged her to challenge herself. Her science teachers in high school served as her first role models. “These women were my initial contact with the sciences and their attitude propelled me forward, encouraging me in this domain which was widely perceived to be a male one at that time,” she says.

You Can’t Scare Her

After high school, Prudence went on to study biochemistry at the University of Zimbabwe where her main inspiration was Idah Sithole-Niang, who helped her become even more fascinated by the world of molecular biology and biochemistry. “Both her style of teaching and her research enthusiasm pushed me to dig deeper into the field of science, ask more questions, and begin to seriously consider a scientific career,” she says. Sithole-Niang observes of her former student that Prudence “does not scare easily” and always showed great initiative. “I had assigned her a project to isolate genomic DNA using kitchen ingredients, such as dish detergent, table salt, and alcohol, and gave

her a series of detergents to test.” Some of the detergents degraded the DNA, but Prudence went to the library to research ways to improve the experiments and came up with the idea to include a stabilizing agent called EDTA. “We went on to use this DNA isolation approach in the lab, and it worked beautifully!” she says.

Brutal Environments

In 2006, Prudence was awarded a UNESCO-L’Oréal Fellowship, which enabled her to continue on as a Ph.D. student in molecular biology after she had transferred to the University of Nottingham in the United Kingdom. There she studied a special class of bacteria called Archaea, which are able to withstand extreme environments, such as excessive heat, pressure, and acidity. One group of these bacteria, known as halophiles, thrives in areas of high salt concentration. Specifically, Prudence sought to understand how proteins and DNA in the cell can interact at such high salt concentrations.

After completing her Ph.D., Prudence has stayed on at the University of Nottingham as a postdoctoral research fellow in the School of Pharmacy, where she is applying her skills to cancer research in the Department of Structural Biology and Medicinal Chemistry.

Mentoring a New Generation

Prudence continues to collect awards and recognition for her work. She was selected to attend the prestigious Biovision World Life Sciences Forum in Lyon, France, in 2007, where she was able to meet with five Nobel Prize winners. She was also named in Marie Claire’s 2007 survey as one of the 25 most promising young women in the UK. Now, as part of the Sci-Tech girls project, a platform provided by L’Oréal, she counsels high school students about pursuing a career in science. “The capacity to be a mentor to these young girls, who are asking similar questions to the ones I had, is what I am most proud of to date,” she says humbly.

Prudence plans to continue on in cancer research and says she would also like to increase her participation in speaking to the younger generation about scientific careers and “see more women take up their rightful place in scientific research.” According to Prudence, a scientific career is fascinating, rewarding, and extremely challenging, and “there is always that added excitement of working in an area ripe with the potential of making a discovery that may have a great impact on all humanity.”

“The capacity to be a mentor to these young girls, who are asking similar questions to the ones I had, is what I am most proud of to date.”

