



## **Esther NGUMBI**

### **Home Country**

Kenya

### **Degree**

PhD in Entomology

### **Expertise**

Chemical Ecology

### **Research Focus**

Alternative Strategies  
for Controlling Insect  
Pests

### **Host University**

Auburn University,  
United States

### **Fellowship Awarded**

2010

Esther Ngumbi comes from a family of seven. Her parents made many sacrifices and supplemented their small teaching salaries with subsistence farming so that their children could attend university. They inspired Esther and her sisters to pursue their educational goals and to persevere against challenges.

Active in a number of professional associations, Esther is an advocate for ending world hunger. She speaks on this topic at conferences and interacts with policy makers from organizations such as the World Bank, USAID and the United Nations.

After earning her Bachelor of Science degree in biochemistry and zoology in 1999 at Kenyatta University in Kenya, where she also graduated in 2002 with her Master of Science degree, in 2008 Esther began studying for her PhD in entomology at Auburn University in the United States.

At Auburn her research involves insect pests affecting crops, one of the most serious constraints on food security worldwide. The majority of insect pests are controlled by spraying insecticides, but insecticide use creates problems such as human poisoning along with health risks, environmental hazards, loss of biodiversity and resistance among pests. In developing countries such as Kenya women contribute most to food production and are especially vulnerable to the risks associated with pesticide use.

Esther is researching more sustainable ways to feed our expanding population. Among the alternative strategies for controlling pests is biological control utilizing parasitoids, but the success of parasitoids in suppressing pest populations depends on their ability to locate hosts in a complex olfactory and visual environment. Esther is seeking to characterize mechanisms of olfaction and response to host-related odor in two parasitoid wasps (a specialist and generalist) using a multidisciplinary approach that integrates analytical, behavioral and electrophysiological techniques. Her results may help understanding of better olfaction in parasitoids and may open avenues for improved insect pest management.

Esther plans to teach at Egerton University in Kenya. She also hopes to establish an International Science and Leadership Centre with a mission to facilitate sustainable growth and development on the African continent through science and technology.