

Resilience in the Face of Stress

Since high school, **Ahu Altinkut-Uncuoglu** knew she wanted to study biology and credits a favorite biology teacher for inspiring her to pursue her Bachelor's, Master's, and then Ph.D. at Istanbul University in Turkey. Nearly two decades later, Ahu is now an accomplished scientist with an impressive academic career, attempting in a very real way to help solve the problem of world hunger.



“Much success simply comes down to hard work.”

Stress Tolerance and Disease Resistance

Even today, malnutrition remains a major contributor to the total global disease burden, and more than one-third of child deaths worldwide are due to undernutrition, according to the World Health Organization. Ahu's research helps to provide a more stable food supply through the development of hardy crops able to withstand drought and disease. She uses plant biotechnology techniques to understand, at the molecular level, how plants can withstand harsh environmental conditions, such as drought, high salt levels, and certain diseases. Her laboratory is currently studying the wheat genome, with the hope of identifying genes and other characteristics that confer resistance to salt stress and a fungal infection called yellow rust disease. “As a result of our efforts, we aim to create tolerant, healthy, and disease-resistant plants to provide more food in a world with changing population and climate,” she says.

Global Collaborations

Ahu has collaborated globally with researchers who have expertise in plant genetics. From 2000 to 2001, Ahu went to Colorado State University as a visiting scientist to work in the Department of Soil and Crop Science. Then, in 2003, she received support from the UNESCO-L'Oréal Fellowship which allowed her to pursue her postdoctoral research at the Institute of Evolution at Haifa University in Israel. During this time she also was awarded funding from two other prestigious fellowships, the International Plant Genetic Resources Institute Vavilov Frankel Fellowship and the Haifa University Research Authority Fellowship. While at Haifa University, Ahu was promoted to foreign senior researcher before returning to Turkey as a senior research scientist at the TÜBİTAK (Scientific and Technological Research Council of Turkey) Marmara Research Center in Gebze, just east of Istanbul.

Kemal Kazan, now a plant science researcher at CSIRO Plant Industry in Brisbane, Australia, provided guidance for Ahu during her doctoral studies. He notes that he saw in her the same aspirations that he once had when he was a Master's student in Turkey. “I think we both felt somewhat limited in our ability to acquire new knowledge, so we sought new opportunities elsewhere,” he says.

The Work-Family Balance

Kazan also points out that Ahu has done a “terrific job” in simultaneously managing her family life and a successful scientific career. Turkey is an open, secular society respecting human rights, but traditionally a woman is still expected to have children soon after marrying, and her husband's career often takes priority in the family, notes Kazan. “Ahu has demonstrated that her family life could indeed go hand in hand with a successful scientific career.” Ahu, who has been married for nine years to “a highly supportive husband” and has a one-and-a-half-year-old son, notes that the decision to have children depends on the priorities in one's life. “I preferred to wait for some time to have children because I wanted to establish my career first so that I am able to spend as much time as possible with my child,” she says.

Hard Work and Persistence

Like the crops she studies, Ahu has displayed great resilience in the face of difficulties. “Even if she fails in some of her challenges, she never gives up. She learns from her past experiences and tries again,” Kazan says. Nermin Gözükmizi, who was Ahu's supervisor during her Master's and Ph.D. programs, notes that Ahu was one of her best students “who knew what she wanted and how to achieve it.” She adds that with her deep intellectual ability, motivation, and ability to work both alone and with others, Ahu is likely to continue to succeed in her career.

Ahu, who is now working as a deputy director for the TÜBİTAK Marmara Research Center Genetic Engineering and Biotechnology Institute, plans to continue doing innovative research, spread her knowledge in the area of plant biotechnology, and educate as many students as possible. She advises budding researchers seeking a career in the sciences to try to develop their knowledge in their area of interest and to focus on an appropriate target. “After that, much success simply comes down to hard work,” she says.

