



SUSTAINING MEMBER

UNIVERSITY OF SOUTH FLORIDA

Inventors Hall of Fame Inductee Norma Alcantar Turns Family Wisdom into Trailblazing Career

University of South Florida Engineering Professor Norma Alcantar's induction into the Florida Inventors Hall of Fame this year is an honor that transcends countries, cultures, and her family's history.

It was her grandmother, Balbina Zamora, who first sparked Dr. Alcantar's curiosity about the folk practice of using prickly pear cactus pads to clean the dirty river water her family relied upon in their rural village in Michoacán, Mexico. Known as nopales, the leaves of the hardy and plentiful plant might not have sparked Dr. Alcantar's interest – let alone been the basis for much of her research – had it not been for her mother and grandmother instilling in her a deep curiosity about the natural world.

Years later after establishing her own lab, Dr. Alcantar wondered if science could explain the tradition. It turned out it could.

The gelatinous substance released by boiling the cactus pads binds with contaminants in water, capturing heavy metals and bacteria and leaving clean water behind. The mucilage also can clean oil spills and purify water in fish farming, making it a healthier practice. Dr. Alcantar tested the use of the cactus mucilage in Port-au Prince, Haiti, following the 2010 earthquake when there was little to no drinking water for victims.

Thus far, 12 of the 22 U.S. patents awarded to Dr. Alcantar are related to her cactus mucilage engineering, which she notes is "knowledge that could have been lost forever."

Her selection to the Florida Inventors Hall of Fame recognized her discoveries, but also her trailblazing efforts to encourage women – and particularly women of color – to pursue careers in engineering. From the start of her career, she guided her female graduate students to win prestigious grants and awards, changing the trajectory of their careers so they could shatter glass ceilings of their own.

Dr. Alcantar is the recipient of the 2010 Hispanic Pathways Award, and in 2016 became the first woman to work her way up the ladder from assistant professor to full professor in USF's College of Engineering. She also was the first woman to lead USF's chapter of the NAI.

Almost instantly this spring, her selection to the Hall of Fame became international news with outlets such as Agencia EFE, Telemundo and Voz de América telling her inspiring story throughout the Spanish-speaking world.

But never far from her mind are thoughts of where her discovery started - with her grandmother, who never learned to read or write, and her mother, Arcelia Alcantar, a single mother who overcame challenges raising her family. Dr. Alcantar may have earned her Ph.D. from the University of California at Santa Barbara, but she learned perseverance and resilience from them, she said.

"They taught me to be curious and encouraged it," she once told the National Public Radio show, Live Science. "They did not provide me with the answer when I asked questions; instead, they gave me clues and pieces so that I could figure out the answer by myself. I think that is how a researcher should think."