

## **North Carolina A&T State University Licenses Process to Create Hypoallergenic Peanuts**

Peanuts cause serious allergic reactions in about 1% of the U.S. population and create untold complications in the lives of allergy sufferers and their families. Peanut allergies are responsible for 59% of deaths caused by food allergies. Highly sensitive children and adults can develop severe reactions from ingesting extremely small amounts. Reactions can include stomach pain; skin rashes, blisters, itching, inflammation, and pain; and in some cases even anaphylactic shock or death.

North Carolina Agricultural and Technical State University has signed a license agreement for its patented process that reduces allergens from peanuts by 98 percent with Xemerge, a Toronto-based firm that commercializes emerging technologies in food, agriculture, and a variety of other fields. Xemerge has opened an office at the Gateway University Research Park south campus.

Under a series of grants provided by the Agriculture and Food Research Initiative of the U.S. Department of Agriculture, the process was developed by Dr. Jianmei Yu, a food and nutrition researcher in A&T's Department of Family and Consumer Sciences, and two former A&T faculty members, Dr. Mohammed Ahmedna and Dr. Ipek Goktepe, both of whom are now at Qatar University.

"Treated peanuts can be used as whole peanuts, in pieces or as flour to make foods safely edible for many people who are allergic," Dr. Yu said. The amount of treated peanuts that an allergic person can eat depends on the severity of the individual's condition.

"Treated peanuts also can be used in immunotherapy," she said. "Under a doctor's supervision, the peanuts can build up a patient's resistance to the allergens."

The process treats roasted peanuts, removed from the shell and skin, with ultrasound and two food-grade enzymes: trypsin, which is commonly used in processing foods including dairy products, fish, and meat; and alpha chymotrypsin, a digestive enzyme produced by the pancreas. Both enzymes are naturally produced by the human body. The enzyme treatment consists simply of soaking the peanuts in a solution of 99.85% water and 0.15% enzyme. This process reduces two key allergens, Ara h 1 by up to 100% and Ara h 2 by up to 98%. The resulting peanuts are almost identical in appearance and taste to untreated roasted peanuts.

The effectiveness of the process was demonstrated in human clinical tests at the University of North Carolina at Chapel Hill. Roasted peanuts that underwent the treatment with two enzymes and ultrasound did not generate allergic reactions in any of the test subjects.

In contrast to other approaches to eliminating peanut allergens, the N.C. A&T process doesn't involve drugs, irradiation, or genetically modified foods, and uses commonly available food-processing equipment.

In collaboration with Xemerge, Dr. Yu is continuing to refine the process by testing the effectiveness of additional food-grade enzymes.