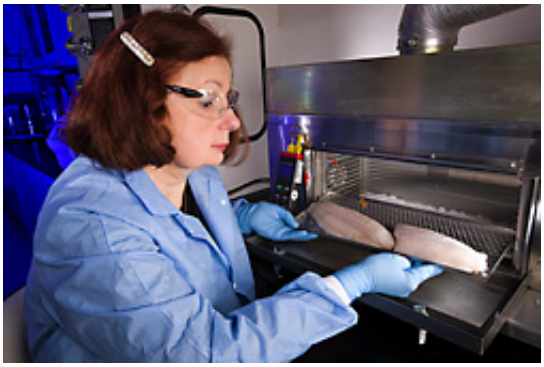
Tactics to safeguard catfish and tilapia fillets from foodborne pathogens explored

December 16 2010, By Marcia Wood



ARS food microbiologist Kathleen Rajkowski is investigating ways to keep America's most popular fish fillets, catfish and tilapia, safe from foodborne pathogens.

(PhysOrg.com) -- On a chilly winter night, quick and easy-to-prepare broiled catfish or tilapia fillets -- seasoned with ginger and garlic -- might make a tasty and satisfying choice for your evening meal. U.S. Department of Agriculture (USDA) food microbiologist Kathleen Rajkowski works with these popular fillets in studies designed to prevent certain pathogenic microbes from contaminating them.

Foodborne illnesses are not commonly associated with either catfish or tilapia fillets. However, these fish products are the focus of the research because they are the two most widely consumed kinds of fish fillets in the United States, according to Rajkowski. She's with the Agricultural

Research Service (ARS), USDA's principal intramural scientific research agency, and her research findings were reported in the October 2010 issue of *Agricultural Research* magazine.

Microbes that Rajkowski investigates include Listeria monocytogenes, Salmonella, Shigella, Staphylococcus, and Escherichia coli O157:H7, all of which can cause gastrointestinal illness in humans.

In an early experiment with both frozen and thawed tilapia and catfish, Rajkowski artificially inoculated fillets with L. monocytogenes, then determined the amount of ionizing radiation needed to reduce the pathogen's population by 90 percent. The dosages needed to achieve that level of safety were nearly the same for both kinds of fish, Rajkowski found. Published in the Journal of Food Protection in 2008, the study was the first to identify the dosages that effectively reduce Listeria in these popular fish products. Her results were similar to those that reduce Listeria in ground beef.

Other tests examine the effectiveness of ultraviolet (UV) light in combating foodborne pathogens. Rajkowski's current UV experiments build upon a study published in Ice World Journal in 2007. In that investigation, she applied a solution of Shigella sonnei to the surface of frozen and fresh tilapia, then exposed the samples to medium-intensity UV light. The treatment resulted in a 99 percent reduction of the pathogen on the frozen fillets, but did not kill S. sonnei on the fresh tilapia. However, exposing the fresh fillets to pulsating beams of high-intensity UV light reduced the pathogen by 99 percent.

Provided by USDA Agricultural Research Service

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