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National Integrated Food Safety Initiative (NIFSI)

Safety of Foods Processed Using Four Alternative Processing Technologies

USDA-CSREES-NIFSI
Project No. 2003-51110-02093

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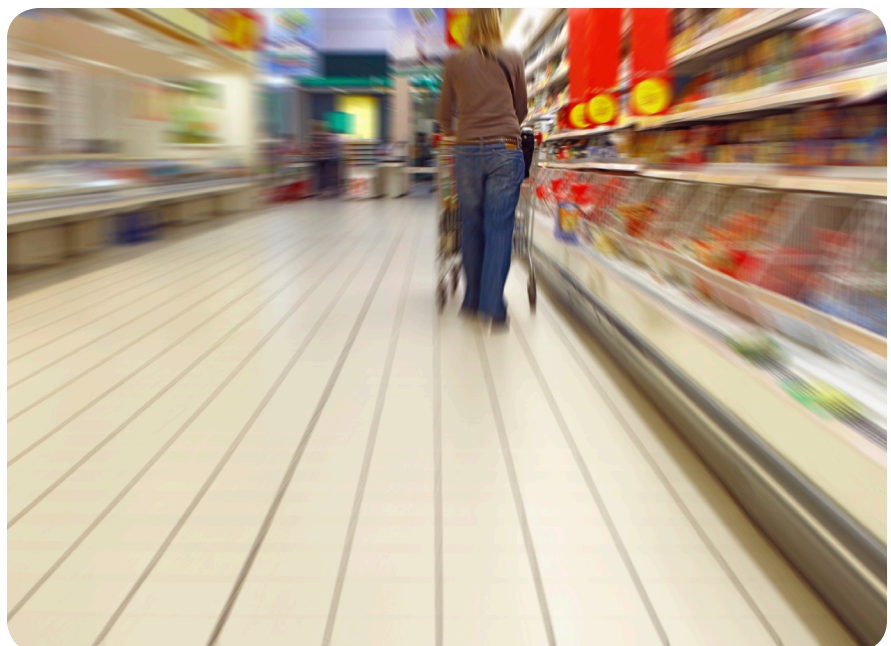
The food industry is in the process of revolutionary change, starting with a number of new processing technologies that will allow foods to retain superior quality without refrigeration. New products stored in refrigerated display cases will taste better and last longer than their current counterparts. >>

The safety of these new processing technologies must be assured before the food industry can adopt them. CSREES funded the processing technologies consortium to develop protocols to assist the food industry in developing safe food products and to improve the knowledge base for regulators, allowing them to make informed decisions when evaluating new processing technologies. The project, titled "Safety of Foods Processed Using Four Alternative Processing Technologies," will help develop well-

trained students who can serve as future experts in these new technologies. Lastly, the project team will work to disseminate the knowledge gained about these new technologies to industry, government, consumers, and other interested groups.

The Processing Technologies consortium is made up of The Ohio State University, North Carolina State University, University of California, Davis, Washington State University, and the U.S. Army Natick Soldier Center.

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Above: Pulsed electric field (PEF) processing is a non-thermal method of food preservation that uses short bursts of electricity for microbial inactivation and causes minimal or no detrimental effect on food quality attributes. PEF can be used for processing liquid and semi-liquid food products.

Below: Attendees from the Alternative Processing Technology course which was offered twice at the University of California-Davis by Dr. Dianne Barrett.

Credit: Photographs courtesy of Dr. Sudhir Sastry, The Ohio State University.

A number of industry partners (including members of the Center for Advanced Processing and Packaging Studies) are supporting the project as well.

The consortium is investigating ohmic heating, microwave heating (both continuous and in-package), pulsed electric fields (PEF), and high pressure processing.

The project has had a number of major successes. For example, the commercialization of PEF technology was accomplished by the Oregon-based Genesis Juice, which together with Michigan-based Diversified Technologies, Inc., won the IFT Industrial Achievement Award in 2007. Recently, the consortium developed an inexpensive radiofrequency identification-based methodology (RFID) to determine residence time distribution in process systems. The new methodology cuts the time required for such a determination

CSREES' National Integrated Food Safety Initiative (NIFSI) supports competitive projects that address priority issues in food safety that are best solved using an integrated approach.

For more information, visit:

http://www.csrees.usda.gov/nea/food/in_focus/safety_if_national.html

from more than 10 hours of run-time to under an hour.

The project has also been successful in its educational efforts. Dr. Diane Barrett with the University of California-Davis has offered a college-level course on alternative processing technologies twice, attracting 58 attendees during the first session. During the second course offering, the program was video-recorded for wider dissemination in the future via Web cast. A special conference for thermal processing specialists was held to discuss special considerations for alternative processing technologies at North Carolina State University in Raleigh, NC.

Project collaborators have developed a number of educational resources for consumers and industry technicians. Dr. Bala Balasubramaniam developed fact sheets that have been used by companies in educating employees on alternative processing technologies. Dr. Christine Bruhn, at the University of California-Davis has developed materials from consumer focus groups for consumer education on alternative processing technologies. The materials can be found at www.oardc.ohio-state.edu/sastry/USDAproject.htm. ■

