High Pressure Processing
Laboratory & Service Center
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Contact: Angela I. Correa (540) 231-2075

HIGH HYDROSTATIC PRESSURE PROCESSING LABORATORY UNVEILED

Another First for Virginia Tech

Blacksburg, VA – A new technology came to Virginia Tech this summer that may greatly benefit the food processing sector, and improve the quality, safety and security of the U.S. food supply. The new high hydrostatic pressure processing (HPP) vessel puts into use a discovery made by a West Virginia Extension researcher in 1899*. The discovery was that applying substantial pressure evenly on a food product or other sample could effectively 'sterilize' or 'pasteurize' that product, by inactivating many food spoilage and pathogenic organisms. This inactivation of harmful microorganisms could occur while the product was still raw or processed, and did not significantly affect appearance, texture or flavor in the majority of cases. It has taken a century for technology to catch up with this interesting finding, and it is only recently that high hydrostatic pressure (<600 MPa) has been feasible on a commercial scale.

The Virginia Tech unit is a Quintus Food Press 35L-600, manufactured by Avure Technologies, Inc. It has a 35-liter batch capacity, and is the only commercial scale unit in operation under the direction of a university anywhere in North or South America. The HPP laboratory is available for a variety of University research projects, including, but not limited to, food, vaccine, polymer, and drug research.

The data on HPP is building quickly, and the process holds promise for use with a wide variety of foods and beverages. It safely extends shelf life without sacrificing quality or good taste. It also makes it possible to accomplish this without the use of additives or heat treatments that may decrease the quality of the final product. In terms of post-treatment microbiological analyses, the results of HPP are similar to those that can be achieved through irradiation, but HPP has none of the negative publicity that has accompanied the advent of irradiation technology. People simply do not fear the idea of pressure treating food.

The mission of the Virginia Tech HPP Laboratory is to make this cutting-edge technology available to as many people as possible in the food industry and beyond. A number of food-related projects are already underway, but a number of non-food projects have also been proposed, such as one that will test the usefulness of HPP in pharmaceutical and vaccine manufacturing. Trained faculty and staff are available to help researchers design a testing protocol that makes maximum use of the resources available. Costs for using the High Pressure Processing laboratory are as follows:

Reduced Rates for University and government Personnel

Half-day	$500
Full day	$1000

Additional services, which can include sensory analysis, chemical and biochemical analyses, microbiological analysis, and analysis of physical properties make it possible to ascertain a complete comparison of products or samples before and after treatment. These services carry additional fees, and are fully discussed during the initial consultation.

The HPP Laboratory also houses an extensive collection of published research on the high hydrostatic pressure technique. An open house will be scheduled for this Fall, to give the general University population an opportunity to learn about the new technology. Researchers interested in learning more about the laboratory, or who would like to incorporate HPP into their research, are urged to visit our website (www.hpp.vt.edu), or contact Laura Douglas, High Pressure Processing Laboratory Manager, at (540) 231-6325 or hpp@vt.edu.

For more information, contact:
Angela I. Correa, Public Information
(540) 231-2075
acorrea@vt.edu

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*1899 B.H. Hite, Bulletin of West Virginia's University Agricultural Experiment Station, Morgantown, WV.