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Pressure BioSciences' UltraShear Platform Maintains Nutritional, Sensory, and Other Important Qualities of Liquid Foods While Inactivating Foodborne Bacterial Spores

Novel Results Published in Respected Peer-Reviewed Food Science and Emerging Technologies Journal - Discussions Underway with Beverage Industry Companies

SOUTH EASTON, MA / ACCESSWIRE / December 12, 2023 /Pressure BioSciences, Inc. (OTCQB:PBIO), a leading developer and provider of broadly enabling pressure-based instruments, consumables, and specialty process development and testing services across global industries, including food and beverage, health and wellness, nutraceuticals, cosmetics, biotherapeutics, and more, today announced the publication of a pivotal scientific study in the critical field of food safety, featuring the Company's Ultra Shear Technology™ (UltraShear™ or UST™) platform.

The recently published article, entitled "Synergistic Effects of Pressure, Temperature, Shear, and Their Interactions on *Clostridium sporogenes* PA3679 Spore Inactivation During Ultra-Shear Processing" was featured in the peer-reviewed journal "Innovative Food Science and Emerging Technologies." This collaborative effort involved esteemed academic scientists from The Ohio State University ("Ohio State") College of Food, Agricultural, and Environmental Sciences ("CFAES"), with co-authorship by PBIO's Senior Vice President of Engineering, Dr. Edmund Y. Ting. The publication underscores the efficacy of PBI's revolutionary UST™ platform in advancing food safety, preservation, stability, and enhancing consumer sensory experiences.

Dr. Ting commented: "For many years, the food industry has been seeking effective methods to achieve high food safety with minimal reduction to the beneficial nutritional and sensory aspects of foods. PBIO's UltraShear platform has the potential to achieve bacterial and bacterial spore destruction required to allow consumer friendly, shelf stable, liquid foods to be made without the addition of chemical additives ("clean label") or high heat processing (often destructive to flavor, nutrition, aesthetics, stability, and other important quality attributes)."

The collaborative effort between The Ohio State University and PBIO has successfully developed conditions that leverage the positive effects of high-pressure homogenization, controlled exposure to elevated temperatures, and high hydrostatic pressure within the UltraShear equipment, resulting in a significant reduction of viable bacterial spores while maintaining high product quality compared to current food processing methods such as thermal inactivation.

Key Highlights from the Publication:

- The article demonstrates the potential of UltraShear inactivation of foodborne bacterial spores by uniquely combining controlled temperature, pressure, and high fluid shear.
- The publication signals the future possibility of UltraShear processing of shelf-stable low-acid fluid products to maximize nutritional and sensory qualities for heat-sensitive products while significantly decreasing the potential of bacterial contamination, including spores.
- The authors validated the compatibility of conventional clean-in-place protocols with the UltraShear equipment.

In their article, the authors spoke to the industrial relevance of their results, stating "UltraShear Technology is a novel processing method that has a potential to help produce value-added liquid foods, sauces, gels, and nanoemulsions, while helping to preserve foods by inactivating undesirable microorganisms using the combination of pressure, shear, and temperature."

Mr. John B. Hollister, Director of Marketing and Sales, added: "Food safety remains a critical concern worldwide, especially with the rising popularity of low-acid, preservative-free liquid products such as dairy and non-dairy plant-based beverages. While various treatment methods exist for preserving vulnerable chemical constituents in food, none individually ensure acceptable inactivation levels of bacterial spores, the dormant forms of dangerous bacteria, while maintaining nutrition, flavor, and overall quality of the food. The Ohio State results indicate that PBIO's patented UltraShear processing platform might be the answer to this very serious global problem."

Mr. Richard T. Schumacher, President and CEO of PBIO, concluded: "What an incredible way to end 2023. In addition to reporting on our patented UltraShear platform and its potential future role in ensuring food safety while maintaining nutritional, sensory, and stability qualities of the food, we also recently announced the following key achievements: (i) independent confirmation in a peer-reviewed journal from a world-renowned scientific team that PBIO's UltraShear processing platform delivers oil-based CBD with unprecedented absorption, speed of action, and bioavailability; (ii) presentation at a key international bioprocess conference by scientists at PBIO and Lonza Biologics (\$7 billion global protein therapeutics CMO), highlighting PBIO's BaroFold platform for breakthrough protein refolding/disaggregation capabilities; and (iii) announcement of a 10X increase in Nano CBD topical spray bottles ordered from the Veterans Service Team, as part of what both organizations believe to be a multi-million dollar transaction over the next five years. As good as things have been recently, we believe that the best is yet to come - we are very much looking forward to 2024!"

About Pressure BioSciences, Inc.

Pressure BioSciences, Inc. (OTCQB:PBIO) is a global leader in providing innovative, broadly enabling, high pressure-based solutions for a range of industries, including biotechnology, pharmaceutical, nutraceutical, cosmeceutical, and agrochemical, as well as food and beverage manufacturing. Our products utilize both constant and alternating pressure. Our patented enabling technology platform, Pressure Cycling Technology (PCT), utilizes alternating cycles of pressure to control bio-molecular interactions (such as cell lysis and biomolecule extraction) safely and reproducibly. PCT-based products are beginning to be widely used for biomarker and target discovery, drug design and development, biotherapeutics characterization and quality control, soil & plant biology, forensics, and

counter-bioterrorism applications. We have recently expanded our market opportunities with the acquisition of the BaroFoldTM patented technology platform, allowing us to enter the biopharma contract services and GMP manufacturing equipment sector. We have also developed the scalable and high-efficiency pressure-based UltraShear TechnologyTM (UltraShearTM) platform, which allows for the creation of stable nanoemulsions of otherwise immiscible fluids. It also allows for the preparation of higher quality, homogenized, extended shelf-life or room temperature-stable low-acid liquid foods that cannot be effectively preserved using existing non-thermal technologies. Our commitment to innovation and cutting-edge technology has established PBIO as a leader in the high-pressure industry, providing unique and effective solutions to our customers.

Forward Looking Statements

This press release contains forward-looking statements. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our or our industry's actual results, levels of activity, performance, or achievements to be materially different from any future results, levels of activity, performance or achievements expressed, implied, or inferred by these forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "may," "will," "should," "could," "would," "expects," "plans," "intends," "anticipates," "believes," "estimates," "predicts," "projects," "potential" or "continue" or the negative of such terms and other comparable terminology. These statements are only predictions based on our current expectations and projections about future events. You should not place undue reliance on these statements. In evaluating these statements, you should specifically consider various factors. Actual events or results may differ materially. These and other factors may cause our actual results to differ materially from any forward-looking statement. These risks, uncertainties, and other factors include, but are not limited to, the risks and uncertainties discussed under the heading "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2022, and other reports filed by the Company from time to time with the SEC. The Company undertakes no obligation to update any of the information included in this release, except as otherwise required by law.

For more information about PBI and this press release, please click on the following website link:

<http://www.pressurebiosciences.com>

Please visit us on Facebook, LinkedIn, and Twitter.

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