



Bhavya Mysore Lokesh

Technology Centre:	Dairy Processing Technology Centre (DPTC)
Academic Mentor:	Dr. Brijesh K Tiwari
Company Partner:	Moorepark Technology Limited
Company Mentor:	Mr. John Hunter

Dr. Bhavya has completed her PhD (2020) in Food Science at CSIR- Central Food Technological Research Institute, University of Mysore (India), MSc (2011) in Food technology at CSIR-Central Food technological research institute, and a BSc (2009) in Biochemistry, Botany, and Microbiology at University of Mysore, India. She was awarded with Dr. J. S. Pruthi Gold Medal in 2012 for securing highest marks in plantation products and spices subject. She received UGC-Junior Research Fellowship in 2015 and a national level AWSAR (Augmenting Writing Skills for Articulating Research) award from National Council for Science & Technology Communication Division, Department of Science and Technology (DST) in 2019.

Dr. Brijesh K Tiwari

Prof. Brijesh K. Tiwari, PhD in Food Engineering (UCD University College Dublin, Ireland), is a Principal Research Officer at Teagasc and Adjunct Associate Professor at University College Dublin, Ireland. He has demonstrated ability to fund, manage and lead a multi-disciplinary food processing research group. His research is funded through various agencies including the EU H2020, SFI, Department of Agriculture, Food & the Marine, Enterprise Ireland, Irish Research Council and industry. A particular focus of Prof. Tiwari's current research relates to the investigation of green and sustainable technological solutions to food industry challenges in the area of food extraction and preservation. Prof. Tiwari have developed, funded and led ab initio his Advanced Food Processing Technologies Research Group (AFT, www.aftgroup.ie) to become a strong multidisciplinary research group in delivering high quality research and innovation metrics, including patents and technology transfer.

Mr. John Hunter

The industry mentor is Moorepark Technology Ltd. CEO, Mr John Hunter (MSc Food Science). He has over twenty-five years' management experience in the dairy industry with leading roles in operations, product and business development including Assistant General Manager, Tipperary Co-op, and Dairy Spreads Manager, Dairygold. Through Moorepark Technology he has been involved in many national and European research projects.

Teagasc has a strong state-of-art research and development infrastructure facilities related to processing technology, shelf life, food safety, food engineering and technology scale-up. It has an international reputation to supports a strong, outcome focused, global, scientific leadership in food/meat production and processing.

DPTC

DPTC is a centre of excellence for dairy processing research and innovation, that aims to provide the Irish dairy sector with world-class research and innovation capabilities. The Centre will help to fuel growth in the Irish dairy sector by performing research focused on cost-efficient processing, facilitating a step-change in environmental sustainability and creating, validating and commercializing a pipeline of science and technology-based manufacturing platforms for dairy ingredients.

Moorepark Technology Limited (MTL)

The MTL operates an ultra-modern pilot plant for food research and development; technical capabilities of MTL provide solutions for dairy products, dried food ingredients, nutritionals, bioactives, beverages, liquid foods and ingredients. The plant is of sufficient scale to accurately simulate commercial food processing and has been assembled specifically for confidential research/development and pre-commercial scale manufacturing. MTL are leaders in the field of spray drying as evidenced by involvement in research programmes and the vast number of client research projects.

Bhavya's project

“Plasma Assisted Spray drying Technologies for tailored healthy and functional dairy products (PASTE)”

The dairy industry is a vital part of Ireland's economy. One of the most critical concerns for this industry is the shelf life of their product, and identifying ways that this can be extended, without the addition of preservatives and affecting the quality. In an increasingly globalised market, there is an urgency to produce safe and high quality dried high-value products.

In this regard, application of plasma assisted spray drying technology will focus on the use of plasma which will target the spoilage micro-organisms pertinent to dairy products and will allow shelf life extension. The possibility of novel technologies (plasma) as a sanitizer for cleaning-in-place of spray dryers a view to ensuring product safety and quality of dairy powder on the start-up of production, including infant milk powder, while ensuring absence of sanitizing residue will also be explored. This will provide the dairy industry the opportunity to develop high-value dried ingredients by reducing microbial load with better retention of nutrients, in combination with novel clean-in-place technologies.

Increasing productivity, resource efficiency, understanding and promoting sustainable consumption, will help to reduce environmental footprints of food and improve competitiveness of drying processes as well. Such a step-change would provide an environmentally friendly and sustainable future for the agri-food industry that aligns with the priorities of United Nations Sustainable Development Goals and EU policies. Thus, it is expected that the results of PASTE will greatly push the boundary of the existing state-of-the-art in the decontamination and drying methods, especially for dairy products with a focus on elimination of chlorates.

PASTE will help in paving a robust route to market via engagement with dairy processing. It will develop strategies focuses on key challenges faced by the Irish Prepared Consumer Foods (PCF) sector which is considered as a growth engine for Irish agri-food sector.