Tushika Raina

+1 (413) 466-1155 | tushikaraina@umass.edu | https://www.linkedin.com/in/tushika-raina/

Professional Statement

Dynamic and innovative Food Science and Biotechnology professional offering a unique blend of technical expertise in product development, quality control, and supply chain management, coupled with strong analytical and problem-solving skills. Demonstrated success in leading cross-functional teams to achieve operational efficiencies and product excellence. Passionate about leveraging scientific knowledge and business acumen to drive sustainable and innovative solutions in the food industry.

Skills

- **Technical Proficiency:** Tableau, SAS (data analysis), Microsoft Office Suite, Pilot Plant operations, Mintel, experiment design, ERP implementations, Genesis software
- **Quality & Safety:** QA practices, HACCP, PCQI, GMP, SOP creation, Food Safety Plan development, compliance with regulatory standards
- **R&D Expertise**: New product development, research methodology, NIR Spectroscopy, Rheology, Mastersizer, Zeta nanosizer, Confocal microscopy, Microfluidizer, Sonicator, SDS-PAGE, and ELISA
- **Sensory & Texture Analysis:** Sensory evaluation, texture, and color profiling, data interpretation for sensory studies
- **Soft Skills:** Problem-solving, Critical Thinking, Decision-making, Team Collaboration, Adaptability, Time Management, Leadership, Communication
- **Activities**: Active member of IFT and Food Science Club**,** Finalist in Ocean Spray's Product Development Competition, Taekwondo, Debate, Declamation, Student member of the International Food Security Conference, Community Volunteer in NGO Tushar Nagar & Company Trusts

Experience

R&D Intern

BAY STATE MILLING, QUINCY, MASSACHUSETTS **June 2023 – August 2023**

- Interpreted market data from reports by Mintel and Modor Intelligence, aligning product development with industry demand thus working cross-functionally with production, quality management, sales, and marketing teams
- Formulated product prototypes utilizing Bay State Milling's proprietary HealthSense® high-amylose wheat flour and SowNaked® oat flour, designed to align with consumer preferences for high-fiber, nutritionally enhanced, and plant-based ingredients
- Developed 2 gluten-free prototypes in collaboration with the Milling and Ingredient Solutions (MIS) sector, developing a gluten-free flour blend to deliver commercially viable solutions for client demonstrations and trade shows
- Used Genesis software for allergen labeling, packaging, and nutritional analysis, delivering a ready-to-market product
- Performed starch damage analysis on high-amylose wheat flour using the AACC 76-31 method on the SDmatic
- Conducted statistical analysis to compare samples from multiple mill locations and correlated data with Megazyme, Mixolab, and RVA tests to provide insights for process optimization
- Implemented effective flexibility management strategies to streamline experimental execution, optimizing productivity and prioritization within tight timelines

Enterprise Resource Planning Supply Chain Consultant

UNICORNMARK, BANGALORE, INDIA **February 2021 - July 2023**

- Spearheaded product strategy development, driving a 5% increase in profit margins and expanding business operations tenfold, supporting UnicornMark's growth in innovative business solutions
- Optimized Supply Chain and E-commerce operations by implementing Agile methodologies through ERP systems, identifying inefficiencies, and improving process workflows
- Enhanced real-time visibility into demand forecasting, resource allocation, procurement, and logistics, resulting in a 40% reduction in lead times and a 20% increase in on-time deliveries
- Developed improvement plans to enhance operational efficiency and product quality, actively participating in continuous process improvement initiatives
- Led cross-functional teams in analysing user behaviour and feedback, applying insights to improve user experience and engagement, contributing to operational excellence and customer satisfaction

R&D Intern
JUBILANT FOODWORKS, GREATER NOIDA, INDIA **June 2019-December 2019**

- Spearheaded pre-commercialization trials for the successful launch of 6 new Fruity Lava Cake flavors at Domino's India, overseeing recipe development, optimization, and detailed documentation to ensure product scalability and consistency
- Analyzed and optimized production processes and Human Machine Interfaces, to ensure compliance with stringent quality and safety standards, while enhancing process efficiency and product integrity
- Managed supplier relationships and negotiated terms, applying strategic sourcing and procurement expertise to improve ingredient quality and reduce costs, contributing to a more efficient product development pipeline
- Executed Center Location Testing (CLT) and leveraged sensory evaluation methods to assess consumer preferences, utilizing statistical analysis to provide actionable insights for product positioning, market strategy, and long-term product success
- Reviewed and corrected Standard Operating Procedures and manufacturing operations for regulatory compliance and quality standards providing feedback

R&D Intern
PEPSICO INDIA HOLDINGS. PVT. LTD. GURGAON, INDIA **April 2021 - May 2021**

- Led the product development of a low-calorie "Tropicana's Orange Delite" juice by replacing sugar with Reb-A improving consumer experience
- Conducted the Thermal processing of juice-hot fill technique and aseptic processing to ensure product longevity
- Led the sensory profiling studies to evaluate and improve the product's taste and texture

Education

Master of Science (M.S.) in Food Science **September 2023- Present**
University of Massachusetts Amherst, MA
Research Assistant- Dr. McClements' lab (*Biopolymers and Colloids Laboratory, Department of Food Science- research methods)*
Plant assistant – Pilot plant management, Hazardous Waste Management Trainee (ordering supplies, analytical support)

Bachelor of Technology (B-tech) in Biotechnology **August 2016- July 2020**
Thapar Institute of Engineering and Technology, Punjab, India

Academic Research Projects

Characterization of Plant-Based Emulsions Using Near-infrared Spectroscopy: Effects of Protein and Oil Concentration on Emulsion Stability

University of Massachusetts Amherst **March 2024- Present**

- Working independently to develop and characterize plant-based emulsions by varying protein and oil concentrations, utilizing Near-Infrared (NIR) spectroscopy to optimize formulation stability and droplet size for improved product performance
- Conducting advanced emulsion stability testing through rheological analysis, particle size distribution, and NIR spectral data, ensuring reliable structural and functional properties
- Applying cross-disciplinary techniques**,** including confocal microscopy and NIR spectroscopy, to gain detailed insights into emulsion structure and enhance formulation effectiveness

Bacterial Identification Device **January 2020 - July 2020**

- Designed and optimized a rapid, portable, sensitive, and specific analyte screening bacteriophage-based bioassay

Green Energy-Driven Bio-Fertilizer Generator Cum Intelligent Farm Protector by using IoT **March 2019 - December 2020**

- Presented the idea at the Science and Technology Entrepreneurs Park (sponsored by the Department of Science and Technology, Government of India)

Extraction and characterization of pectin from different fruit wastes **September 2017 - December 2017**

- Developed and optimized extraction protocols using acid from orange, guava, and banana peels

Certifications

- Preventive Controls Qualified Individual – FSPCA (Quality Management systems)
- Tableau
- Product Management Professional Certificate
- Lab Safety Training by Scishield
- Heartsaver CPR & AED by American Heart Association
- Quality Management
- Supply Chain Management