

Tushika Raina

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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. Skilled in conducting plant trials, managing cross-functional teams, and driving projects from conceptualization to full-scale production. Adept at market research and utilizing ingredient functionality for food processing. Proven ability to manage multiple projects efficiently, ensuring alignment with regulatory standards and delivering high-quality products that meet consumer needs.

Skills

- **Technical Proficiency:** Tableau, SAS (data analysis), Microsoft Office Suite, Pilot Plant operations, Mintel, experiment design, ERP implementations, Genesis software, comprehensive product documentation
- **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, FTIR, Rheology, Mastersizer, Zeta nanosizer, Confocal microscopy, Microfluidizer, Sonicator, HPLC, 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, Detail-Oriented, Team Collaboration, Adaptability, Time Management, Leadership, Communication, Innovative Thinking
- **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 2024 – August 2024

- 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
- Prepared comprehensive product documentation including ingredient lists, BOMs, and packaging specifications, ensuring compliance with regulatory and quality standards.

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