Farhad Alavi

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Professional Summary

• **PhD in Food Science** and **Minor in Molecular Nutrition**, specialized in ingredient chemistry and product development, with a strong passion for plant-based and **alternative proteins**.
• Technological Proficiency in **encapsulation** of vitamins, flavors and bioactive compounds, essential for enhancing their solubility in food systems, stability, and bioavailability.
• Proven track record in leading and executing multiple projects, with expertise in managing 3-4 projects simultaneously, ensuring timely and high-quality results.
• Demonstrated ability in applying scientific knowledge to practical challenges in the food industry, with a focus on
quality improvement and process optimization.
• Specialized Knowledge in the functionality of **food ingredients**, **emulsions**, **hydrogels**, and **encapsulation** techniques applicable to **alternative** dairy and meat products, **high protein drinks**, and **nutrition supplement** formulations.

Skills

- Ingredient chemistry and functionality
- Plant proteins
- High protein drinks
- Emulsions and nanoemulsions
- Rheology and material characterization
- Product development
- Rheology, textural, and structural analysis, HPLC, Microscopy.
- Pioneer encapsulation techniques
- Natural compounds
- Advanced biological techniques including gel electrophoresis, ELISA, Western Blots, PCR and gene expression.
- Detail-oriented and Quick learner
- Cross-functional collaboration
- Project management
- Data evaluation/presentation

Work History

Ingredient Chemistry R&D Intern, 04/2024 - Current
Cargill – Minneapolis, MN

- Performing experiments based on design of experiment (DoE) tool to expand understanding of new oil and plant protein ingredients within Cargill portfolio, aimed at their integration into high protein drinks and plant based products.
- Actively employs analytical chemistry and material science techniques including SDS-PAGE, LC/MS, Rheology, DLS, particle size, and microscopy techniques to comprehensively characterize functional attributes and stability of food ingredients and emulsion formulations.
- Performed in-depth literature and technical reviews to assess the feasibility of a novel membrane filtration technology for plant protein extraction.

Research Assistant, 01/2021 - 03/2024
University of Nebraska-Lincoln – Lincoln, USA

- Three years of experience with innovative technologies, including supercritical CO2 and porous starch and protein particles, ideal to new encapsulation formulations for nutraceuticals, flavours, colorants, and vitamins, resulted in 6 journal publications and 2
  conference presentations.
- Technological proficiency in designing new oil structuring ingredients based on porous starch particles, ideal to formulate healthier bakery products, chocolate formulations and, and plant-based meats, resulted in 2 journal publications and 1 US patent application.
- Proficient in conducting advanced chemical characterization of food and biological samples, utilizing techniques such as LC/MS, SDS-PAGE, ELISA, DLS, UV-VIS and Fluorescence Spectroscopy, Western blotting, as well as mammalian cell culture and cell-based biological assays.
- Training and supervising undergraduate and graduate students in food engineering procedures in the lab.

Research Assistant, 09/2019 - 12/2020
University of Alberta – Edmonton, Canada

- Conducting multiple projects on optimization of the alkaline extraction process fava bean and hemp seed proteins, and using innovative treatments to improve solubility, emulsifying and foaming capacities of the protein isolates, resulted in 2 journal publications.
- Designing new food protein nanostructures in molecular level with tailored thickening and texturing functionality, ideal for formulation of clean label low-fat emulsions and sauces, and confectionery goods, resulted in 3 journal publications.
- Played a key role in the conceptualization, design, and implementation of projects to address specific challenges.

Research Assistant, 01/2016 - 08/2019
University of Tehran – Tehran, Iran

- Conduct research on encapsulation of natural colorant including curcumin, lycopene, and anthocyanins

based on nanoemulsion and nanoparticle technologies to increase their solubility and stability and applicability in aqueous formulations.
- Developing high protein beverages with enhanced heat stability based on whey protein and egg white proteins.
- Writing SOPs and maintaining laboratory equipment.

Education

Ph.D.: Food Sciences And Technology, 03/2024
University of Nebraska-Lincoln - Lincoln, USA

- Thesis Title: Production of low crystallinity and high bioavailable curcumin using supercritical CO2 technology.
- Minor: Minor in Molecular Nutrition

Master of Science: Food Engineering, 09/2015
University of Tehran - Tehran, Iran
Thesis Title: Production of bioactive peptides by enzymatic hydrolysis of fish proteins.

Bachelor of Science: Food Engineering, 09/2013
Shiraz University - Shiraz, Iran
Research Project: Optimization of drying conditions of eggs and dates using fluidized bed drying.

Publications

https://scholar.google.com/citations?hl=en&user=v8tdCxUAAAAJ&view_op=list_works