

UMUT YUCEL, PhD
Kansas State University
School of Health, College of Health and Human Sciences
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EDUCATION

The Pennsylvania State University University Park, PA, USA
PhD in Food Science 2011
Dissertation Title: Properties of a hydrophobic solute in emulsions: An EPR Study

The Pennsylvania State University University Park, PA, USA
MS in Food Science 2010
Thesis Title: Ultrasonic characterization of crystal dispersions

Middle East Technical University Ankara, Turkey
MS in Food Engineering 2006
Thesis Title: Evaluation of high-pressure pretreatment for enhancing the drying rates of selected fruits and vegetables

Middle East Technical University Ankara, Turkey
BS in Food Engineering 2004

EXPERIENCE

Kansas State University School of Health Associate Professor, Food and Nutrition Program Chair Graduate Program Director Associate Professor, Food and Nutrition	Manhattan, KS, USA 07/2025 – Present
Department of Animal Sciences and Industry/Food Science Institute Associate Professor Assistant Professor	08/2024 – 07/2025 Manhattan, KS, USA 07/2022 – 08/2024 03/2016 – 07/2022

Accomplishments

- Lead transdisciplinary teams from 6+ departments representing the College of Agriculture, College of Arts and Sciences, and College of Engineering as well as private-sector companies.
- Manage 19 projects and generate \$4M of grant funding, serving as lead PI for 25% of the funds, from grantors, such as USDA, NIH, Kansas Department of Agriculture, and commodity boards.
- Published over 30 peer-reviewed articles (total 40+), 4 book chapters, and 2 patents leading the idea generation, hypothesis development, and preparation.
- Present 10 invited seminars (total 18) and 23 conference abstracts.
- Mentor 2 post-doctoral researchers, 4 PhD students, 3 MS students, several undergraduate students, long-term visiting scholars, undergraduate (SUROP) and graduate student interns from other universities; serve also as coursework advisor to an additional 15 graduate and 10 undergraduate students on average annually.
- Lead and collaborate on research related to food biophysical chemistry and food processing emphasizing sustainable food production systems, structured colloidal dispersions, encapsulation of functional ingredients, oxidation chemistry and free radical mechanisms, utilization of functional ingredients from emerging crops and repurposing food processing waste streams, biodegradable and active food packaging, processomics and flavoromics for fermented products, analytical and physical methods to study microscale interactions important for food quality.
- Lead and collaborate on the Food as Medicine initiative.
- Serve as the faculty advisor for the Food Science Club.
- Revolutionize the infrastructure of the food biophysical chemistry and food functionality laboratories with the state-of-the-art instrumentation.

Teaching

- Teaching various online and in person undergraduate and graduate courses on Food and Health area

Undergraduate courses

Developed and Taught

FNDH 705 Processed Foods and Human Health
FDSCI 510 and 511 Fruits and Vegetable Processing (lectures and laboratory)
Food Science 721 and 722: Reaction Kinetics in Food Systems lectures and recitation

Taught

FNDH 575 Research Methods in Health Sciences
FDSCI 695 Quality Assurance of Food Products
Food Science 728: Physical Methods in Food Analysis

Graduate courses

Developed and Taught

FNDH 897: Applications in FNDH
FDSCI 907: Food Dispersions
FDSCI 711: Flavor Chemistry

Courses co-taught

Food Science 501: Food Chemistry
Food Science 810: Fermented Foods
FDSCI 660 Study Abroad in Italy

Guest lecturer

FDSCI 600 Food Microbiology

Research in food biophysical chemistry, ingredient functionality, and food material characterization for elucidating small molecule interactions important for food architecture and improving food quality:

Sustainable food systems, processomics, chemometrics:

- Development and validation of analytical methods for assessing irradiation-specific changes in food products including free radical pathways and lipid oxidation for regulatory agencies
- Studying free radical mechanisms in photocatalytic reactions based on TiO₂ and TiO₂-grafted carbon nanotubes activated at UV and visible wavelengths; and their use in sustainable agriculture, including herbicide and pesticide decontamination and off-flavor mitigation in food processing environments.
- Surveillance of microplastics and PFAS in agricultural resources, such as soil, surface, and underground water, as well as their mobility through food processing (e.g., salt, milk, etc.); and development of mitigation strategies.
- Characterizing the architecture of soft materials of complex polymer networks, such as microbial biofilms, protein gels, biodiverse packaging films, for their microscopic and macroscopic properties (e.g., composition, spatial network formation, surface hydrophobicity, strength, etc.).
- Elucidating the interfacial behavior and rheology of emulsifiers relevant to the formation and stability of their emulsions.

Food and health:

- Utilizing novel ingredients from emerging crops, such as *Camelina sativa* and sorghum, to promote sustainable agricultural systems and improve food quality through novel plasticizers, emulsifiers, and stabilizers in colloidal dispersions, emulsions, foams, confectionaries.
- Exploring novel uses of sorghum as a sustainable plant-based resource for value-added food products, such as fermented products, baked products, and beverages.
- Developing manufacturing technologies for oleochemicals from emerging and sustainable agricultural commodities for improving the quality of beverage, dairy-alternative, and confectionery products.
- Repurposing food processing waste streams, such as using sorghum DDGS to manufacture biodegradable packaging films; recovered waxes and polar lipids as processing aids.
- Development of structured colloidal systems for efficient and effective use of functional ingredients with distinct physicochemical properties (antioxidants, antimicrobials, probiotics, phytochemicals, flavors, etc.) in complex food systems.
- Understanding the fate, transport and health impacts of environmental contaminants (microplastics, PFASs, pesticide and herbicide residues) across the food supply chain

Fermented products:

- Processomics and flavoromics for fermented products (e.g., beverage and baked products)
- Elucidating the microscale interactions between small molecules (e.g., antioxidants, flavor active compounds) and biopolymers, particularly proteins that affect their stability and availability.

Middle East Technical University
Food Engineering Department

Assistant Professor, Food Engineering (50% teaching, 50% research)

Ankara, Turkey
2014 – 2016

Research in food colloidal chemistry, food physical chemistry and ingredient functionality through funded grants, and research collaborations:

- Received a career award (\$200,000) funded by Scientific and Technological Research Council of Turkey in 2015 (terminated due to appointment at K-State) and four internal seed grants.
- Generate knowledge and processing technologies to produce emulsion-based delivery systems containing phytochemicals for improving food quality and nutritional profile.
- Design nano-structured lipid particles to encapsulate flavors for baked products (PI in seed grant \$5,000).
- Using high hydrostatic pressure treatment to control the crystalline structure of solid lipid nanoparticles (co-PI in seed grant, \$5,000) – two articles published.
- Improving the rheological and textural properties of cookies and cookie doughs using maltodextrin and microfluidization (co-PI in seed grant, \$2,000). MS student graduated.
- Production and characterization of heat-resistant chocolate (co-PI in seed grant, \$2,000).
- Serve as academic advisor for 65 undergraduate students and mentor 2 MS students.

Teaching

Undergraduate courses

Food Chemistry
Applied Kinetics
Food Engineering Operations Laboratory –
Spray Drying module.

Graduate courses

Physical Chemistry of Foods: A new course I created.
Food and Health: A new course I created.

University of Minnesota

Food Science and Nutrition Department

Post-Doctoral Researcher, Flavor Chemistry, (100% research)

Saint Paul, MN, USA
2012 – 2014

Research

- Conducting experiments in the area of flavor chemistry to include flavor encapsulation and characterization of their micro-scale interactions funded through the Flavor Research and Education Center.
- Engineering high-payload encapsulation systems with temperature- and pH-controlled release mechanisms for flavors via emulsion-based nanoparticles, and hydrogels through complex coacervation compatible with soft foods, such as confectionary and dairy products.
- Controlling protein structure to modulate the perception of salty taste
- Development of APcl-MS technique to assess real-time flavor release from complex environments

Student support and teaching activities include:

- Guest lecturer in Food Chemistry and Flavor Technology
- Supervising graduate (MS) and undergraduate researchers

AWARDS

Institute of Food Technologists, Food Chemistry Division, Division Chair Award, 2020-2021
Institute of Food Technologists, Food Chemistry Division, Outstanding Service Award, 2022-2023
Completed Peer Review of Teaching Program, Kansas State University, 2016-2017

HIGHLIGHTED STUDENT RECOGNITION

The graduate student researchers that I supervise receive competitive scholarships, win student awards at conferences and student competitions.

Graduate Student Activities and Awards

Institute of Food Technologists (IFT) KC Section Outstanding Doctorate Student Scholarship, 1st place, 2021
Burdock Group IFT18 & IFT19 Student Travel Award

Graduate student award for Outstanding Research in Physical and Chemical Properties of Food, Kansas State University, 2018
 Cereals & Grains Association, Outstanding Service Award, 2021
 AOCS Analytical Division Student Excellence Award, 2023
 IFT Food Chemistry Division Student Competition, 3rd place 2024, finalist 2025 (pending)
 IFT KC Section Outstanding Doctorate Student Scholarship 1st place, 2021, 2022
 Kansas State University Distinguished Professors Excellence in Graduate Studies Award, 2023
 IFT Feeding Tomorrow Scholarship PhD Degree Scholarship, 2023
 IFT KC Student Liaison
 Cereals and Grain Student Association Chair
 IFT Protein Division Social Media Coordinator
 IFT Protein Division Newsletter Lead
 Chair of the IFT food bowl competition team

EXTENSION AND OUTREACH ACTIVITIES

Working with private sector entities, I utilize my expertise to solve problems related to taste, sensory experience, toxicology, food quality, and food safety. These collaborations include local organizations and well-known large companies in the United States.

Technology Development Institute, K-State (particle size and surface characterization of inorganic nanoparticles; analysis of decomposition products of anesthetic gas used in veterinary medicine)
Technology Transfer Institute, K-State (sustainable and biodegradable packaging solutions from biodiverse materials)
Supply Chain Services, LLC (evaluation of different detergent formulations)
Missouri Malting Company (improving physical and sensory attributes of sorghum milk)
ACH Foods (oil replacer formulation)
Bard's Brewing (improving sorghum beer flavor)
Grandma Hoerner's Foods (cooling requirements of a new line addition)
Meat Works of Kansas (toxicology analysis for beef carcasses)
MSBiotec (encapsulation of anaerobic probiotics for ruminants)
Shark-Ninja (flavor applications)
Wine456 (lectures on flavor chemistry and quality of wine)
Manhattan Brewing Co. (brewing short-course development)
Entech (novel volatile sorption technologies, such as FEVE, VASE)
 NuLife (development of sorghum-based food products and related manufacturing technologies)
 Venture 37 – USAID – Infant biscuit and teether development

GRANT FUNDING 2016 - CURRENT

Applied and Pending

Exploring and Enhancing the Anti-Diabetic Effects of Anthocyanin-Rich Sorghum Products

USDA-NIFA
\$650,000
PI

A Systematic Assessment of PFAS Prevalence, Transportation, Bioaccumulation and Microbial Weathering in Aquatic Systems Toward Better Monitoring and Management.

DOI – US Geological Survey
\$310,000
PI

PARTNERSHIP: Exploring the Influence of Sorghum-Based Products on Iron Accessibility and Gut Microbiota in Women and Children.

USDA-NIFA
\$800,000
Co-PI

Development of a physics-informed machine learning predictive model for effective cleaning and sanitation strategies in food premises

USDA-NIFA
\$650,000
Co-PI

2024-2025

Utilization of Sorghum DDGS for Manufacturing of Biodiverse Film Materials in the Food Supply Chain

Kansas Grain Sorghum Commission
\$55,000 (60%)
PI

2022-2026

Novel sanitation approaches to control *Listeria* biofilms in the organic produce industry

USDA-NIFA
\$1,500,000 (30%)
Co-PI

2023-2024

Nanoscale Materials for Improved Energy Storage and Conversion, Food Security and Safety, and Environmental Sustainability

K-State Seed Grant
\$100,000 (11%)
Co-PI

2023-2024

Effective strategies to sanitize trucks and tanks: a validation study for the rendering industry

Fats and Proteins Research Foundation
\$43,805 (25%)
Co-PI

2022-2023

Controlling the growth of foodborne pathogens in soil-substitute microgreen production system

USDA – Kansas Department of Agriculture
\$52,481 (20%)
Co-PI

2022-2024

A validation study for the tree fruit industry: Effective strategies to sanitize harvesting bins and picking bags

Center for Produce Safety
\$251,381 (15%)
Co-PI

2021-2025

Effect of natural and controlled fermentation on the functional properties of sorghum

USDA-ARS
\$482,000 (40%)
Co-PI

2019-2024

Functional properties of sorghum biomolecules related to human health benefits*

USDA-ARS
\$250,988 (100%)
PI

2020-2024

Optimizing the temporal and spatial synthesis of functional lipids in developing seeds

USDA-NIFA
\$500,000 (15%)
Co-PI

2020-2021

Development of food science and baking science laboratory exercises utilizing soybean protein extracts

Kansas Soybean Commission
\$16,288 (25%)
Co-PI

2019-2022

Evaluating novel octenylsuccinate anhydride modified starches for emulsion and encapsulation applications

K-State Seed Grant
\$47,453 (40%)
Co-PI

2019-2020

Soy flour as a primary and vital ingredient in gluten-free bakery products

Kansas Soybean Commission
\$25,000 (5%)
Co-PI

2019-2020

Sustainable and environmentally friendly wash-water systems for improving the safety and quality of leafy greens*

USDA – Kansas Department of Agriculture
\$54,175 (36% effort)

PI

2018-2019

Soy flour as a primary and vital ingredient in gluten-free bakery products

Kansas Soybean Commission
\$39,530 (5% effort)

Co-PI

2016-2021

Development and validation of analytical and physical testing methods to evaluate the irradiation history of animal food*

National Institute of Health
\$500,000 (60% effort)

PI

2019-2020

Sustainable and biodegradable food packaging applications using sorghum DDGS*

K-State Seed Grant
\$46,330 (34% effort)

PI

2017-2018

Effective packing practices to control postharvest disease in small fruit crops

USDA – Kansas Department of Agriculture
\$70,086 (30% effort)

Co-PI

PATENTS & PUBLICATIONS

Patents

- **Yucel U**, Bean S, Trinetta V (2021). U.S. Provisional Patent Application 63/216,733 filed on June 30, 2021 for “Biodegradable Films from DDGS”.
- Trinetta V, **Yucel U** (2018). U.S. Provisional Patent Application 62/694,609 filed on July 6, 2018 for “Lipid nanoemulsion-doped antimicrobial packaging films”.

Peer-Reviewed Articles (* indicates corresponding author)

Submitted:

- Kaya EC, Trinetta V, **Yucel U*** (submitted). Development and characterization of biodegradable sorghum DDGS films. Food Packaging and Shelf Life (*under revision*).

Published:

- Deniz A, Ruiz-Llacsahuanga B, Critzer F, Boyle D, Lacasa J, Yucel U (2025). Formation and control of *Listeria monocytogenes* growth and accumulation on food processing surfaces in the fresh produce industry. Journal of Food Protection, *in-press*.
- Ivers C, Elias CLA, **Yucel U**, Sayles M, Jones C, Trinetta V (2025). The influence of cleaning and sanitizing on *Enterobacteriaceae*, *coliforms*, and *E. coli* presence in rendered fat transportation tankers used for the pet food industry. Food Protection Trends, *in-press*.
- Stewart S, Chalamalasetti S, Ruiz-Llacsahuanga B, Critzer F, Bhullar M, Nwadike L, Yucel U, Trinetta V (2025). The effect of commercial sanitizers on *Listeria monocytogenes* (planktonic and biofilm forms) experimentally inoculated materials commonly used during tree-fruit harvesting. Letters in Applied Microbiology, 78(4), ovaf056. <https://doi.org/10.1093/lambio/ovaf056>
- Ivers C, Chalamalasetti S, Ruiz-Llacsahuanga B, Critzer F, Bhullar M, Nwadike L, Yucel U, Trinetta V (2024). Evaluation of commercially available sanitizers efficacy to control *Salmonella* (sessile and biofilm forms) on harvesting bins and picking bags. Journal of Food Protection, 87(12), 100394. <https://doi.org/10.1016/j.jfp.2024.100394>.
- Ivers C, Kaya EC, **Yucel U**, Boyle D, Trinetta V (2024). Evaluation of *Salmonella* biofilm attachment and hydrophobicity characteristics on food contact surfaces. BMC Microbiology, 24, 387. <https://doi.org/10.1186/s12866-024-03556-2>.
- Mattioni B, Tilley M, Scheuer PM, Paulino N, **Yucel U**, Wang D, De Francisco A (2024). Flour treatments affect gluten protein extractability, secondary structure, and antibody reactivity. Foods, 13, 1-18.

- Kaya EC, Johnson DE, Tamura P, Timothy D, **Yucel U*** (2024). Improving the whey protein foam structures by using novel acetylated triglycerides (acetyl-TAG): A response surface methodology (RSM) approach. *Journal of the American Oil Chemists' Society*, 101(4), 397-406.
- Kaya EC, **Yucel U***, Peiris S, Aramouni F (2024). Sorghum oleoresins: Effect of extraction on compositional and structural characteristics. *Journal of the American Oil Chemists' Society*, 101(1), 123-132.
- Li K, **Yucel U**, Trinetta V* (2023). The Effects of Different Types of Sorghum on Huangjiu Fermentation Dynamics. *Journal of Food Technology and Preservation*, 7(6), 201.
- Manville E, Kaya EC, **Yucel U**, Boyle D, Trinetta V* (2023). Evaluation of *Listeria monocytogenes* biofilms attachment and formation on different surfaces using a CDC biofilm reactor. *International Journal of Food Microbiology*, 399, 110521.
- **Yucel U***, Tonyali B, Smith JS (2023). Interaction of 2-dodecylcyclobutanone (2-DCB) and internal standard in irradiated chicken jerkies and pig ears in solid-phase microextraction (SPME)-coupled gas chromatography-mass spectrometry (GC-MS) analysis. *Food Chemistry*, 421, 136109.
- Tonyali B, **Yucel U*** (2022). A novel deconvolution approach for analysis of complex electron paramagnetic resonance (EPR) spectra of irradiated sweet potatoes. *ACS Food Science and Technology*, 2, 10, 1525-1534.
- Mayyahi AA, Sarker S, Everhart BM, Tonyali B, **Yucel U**, Amama PB* (2022). Synthesis of ultrathin, nano-sized $\text{Ti}_3\text{C}_2\text{T}_x$ with abundant =O and -OH terminals and high transparency as a cocatalyst: Enabling design of high-performance Titania $\text{Ti}_3\text{C}_2\text{T}_x$ hybrid photocatalysts. *Journal of Physics and Chemistry of Solids*, 170, 110875.
- Everhart BM, McAuley B, Mayyahi AA, Tonyali B, **Yucel U**, Amama PB* (2022). Photocatalytic NO_x mitigation under relevant conditions using carbon nanotube-modified titania. *Chemical Engineering Journal*, 446, 1, 136984.
- Heermann ML, Brown J, Getty KJK*, **Yucel U** (2022). Assessing functionality of alternative sweeteners in rolled sugar cookies. *Processes*, 10, 868.
- Lee H-S, Santana AL, Peterson J, **Yucel U**, Perumal R, De Leon J, Lee S-H*, Smolensky D* (2022). Anti-adipogenic activity of high-phenolic sorghum brans in pre-adipocytes. *Nutrients*, 14, 1493.
- Taghvaei M, Tonyali B, Sommers C, Ceric O, Linghu Z, Smith JS, **Yucel U*** (2021). Analysis of radiolytic lipid products in model food-lipid systems from gamma irradiation. *Journal of the American Oil Chemists' Society*, 98(7), 737-746.
- Molitor A, **Yucel U**, Vipham J, Jones C, Trinetta V* (2021). Effects of moisture and temperature on Salmonella survivability in beef tallow, white grease and chicken rendered fat. *Translational Animal Science*, txab110.
- Heermann ML, Brown J, **Yucel U**, Getty KJK* (2021). Assessment of a gluten-free laboratory exercise in an undergraduate food processing course. *Journal of Food Science Education*, 20, 178-188.
- Tonyali B, Sommers C, Ceric O, Smith JS, **Yucel U*** (2020). An analysis of cellulose- and dextrose-based radicals in sweet potatoes as irradiation markers. *Journal of Food Science*, 85(9), 2745-2753.
- Taghvaei M, Sommers C, Ceric O, **Yucel U**, Smith JS* (2020). Solid phase micro extraction of food irradiation marker 2-dodecylcyclobutanone (2-DCB) from chicken jerkies treated with glycerol. *Journal of Food Science*, 85(8), 2608-2614.
- Trinetta V*, McDaniel A, Batziakas KG, **Yucel U**, Nwadike L, Pliakoni E (2020). Antifungal packaging film to maintain quality and control postharvest diseases in strawberries. *Antibiotics*, 9, 618.
- Getty KJK*, Heermann ML, **Yucel U** (2020). Application of a rolled cookie laboratory exercise as a method for students to gain undergraduate research experience in food science. *Journal of Food Science Education*, 19, 141-151.
- Uhl B, Peterson DG, **Yucel U*** (2020). APci-MS and EPR analyses of nano-structured lipid composites for small molecule encapsulation. *Journal of Colloid and Interface Science*, 591, 124421.
- Tonyali B, McDaniel A, Amamcharla J, Trinetta V, **Yucel U*** (2020). Release kinetics of cinnamaldehyde, eugenol, and thymol from sustainable and biodegradable active packaging film. *Food Packaging and Shelf-Life*, 24, 100484.

- Coffey BK, Nwadike L, **Yucel U**, Trinetta V* (2020). Producer willingness to pay for enhanced packaging to prevent post-harvest decay of strawberries. *Journal of Applied Farm Economics*, 3(1), 31-41.
- McDaniel A, Tonyali B, **Yucel U**, Trinetta V* (2019). Formulation and development of lipid nanoparticle antifungal packaging films to control postharvest disease in small berries. *Journal of Agriculture and Food Research*, 1, 100013.
- Tonyali B, McDaniel A, Trinetta V, **Yucel U*** (2019). Evaluation of heating effects on the morphology and membrane structure of *Escherichia coli* using electron paramagnetic resonance spectroscopy. *Biophysical Chemistry*, 252, 106191.
- Trinetta V*, McDaniel A, Magossi G, **Yucel U**, Jones C (2019). Effects of different moisture and temperature on *Salmonella* survival in poultry fat. *Translational Animal Science*, 3(4), 1369-1374.
- Trinetta V*, Gragg SE, **Yucel U** (2018). The very real impact of the food safety modernization act: A roundtable symposium addressing FSMA's effect on academia and industry. *Food Protection Trends*, July/August 2018, 304-307.
- Kong L, **Yucel U**, Yoksan R, Elias RJ, Ziegler GR* (2018). Characterization of amylose inclusion complexes using electron paramagnetic resonance spectroscopy. *Food Hydrocolloids*, 82, 82-88.
- S Sevdin, B Ozel, **U Yucel**, MH Oztop, H Alpas* (2018). High Hydrostatic Pressure Induced Changes on Palm Stearin Emulsions. *Journal of Food Engineering*, 229, 65-71.
- Sevdin S, **Yucel U**, Alpas H* (2017). Effect of high hydrostatic pressure on crystal structure of palm stearin emulsions. *Innovative Food Science and Emerging Technologies*, 42, 42-48.
- Trinetta V, Morgan M, Coupland JN, **Yucel U*** (2017). Essential oils against pathogen and spoilage microorganisms of Fruit Juices: Use of versatile antimicrobial delivery systems. *Journal of Food Science*, 82(2), 471-476.
- **Yucel U**, Peterson DG* (2015). The effect of protein-lipid-salt interactions on the sodium availability in mouth and consequent perception of saltiness as affected by hydration. B: In powders. *Journal of Agricultural and Food Chemistry*, 2015, 63(34), 7494-7498.
- **Yucel U**, Peterson DG* (2015). The effect of protein-lipid-salt interactions on the sodium availability in mouth and consequent perception of saltiness. A: In solutions. *Journal of Agricultural and Food Chemistry*, 2015, 63(34), 7487-7493.
- **Yucel U**, Elias RJ, Coupland JN* (2013). Effect of liquid oil on the distribution and reactivity of a hydrophobic solute in solid lipid nanoparticles. *Journal of the American Oil Chemists' Society*, 90, 819-824.
- **Yucel U**, Elias RJ, Coupland JN* (2013). Localization and reactivity of a hydrophobic solute in lecithin and caseinate stabilized solid lipid nanoparticles and nanoemulsion. *Journal of Colloid and Interface Science*, 394, 20-25.
- **Yucel U**, Elias RJ, Coupland JN* (2012). Solute distribution and stability in emulsion-based delivery systems: An EPR study. *Journal of Colloid and Interface Science*, 377, 105-113.
- Samtlebe M, **Yucel U**, Weiss J, Coupland JN* (2012). Stability of solid lipid nanoparticles in the presence of liquid oil emulsions. *Journal of the American Oil Chemists' Society*, 89, 609-617.
- **Yucel U**, Coupland JN* (2011). Ultrasonic characterization of lactose crystallization in gelatin gels. *Journal of Food Science*, 76(1), E48-E54. (Selected for cover image).
- **Yucel U**, Coupland JN* (2010). Ultrasonic attenuation measurements of the mixing, agglomeration, and sedimentation of sucrose crystals suspended in oil. *Journal of American Oil Chemists Society*, 88(1), 33-38.
- **Yucel U**, Coupland JN* (2010). Ultrasonic characterization of lactose dissolution. *Journal of Food Engineering*, 98, 28-33.
- **Yucel U***, Alpas H, Bayindirli A (2010). Evaluation of high pressure pretreatment for enhancing the drying rates of carrot, apple, and green bean. *Journal of Food Engineering*, 98, 266-272.
- Vardhanabhuti B, **Yucel U**, Coupland JN, Foegeding EA* (2009). Interaction between β -lactoglobulin and dextran sulfate at near neutral pH and their effect on thermal stability. *Food Hydrocolloids*, 23 (6), 1511-1520.

Book Chapters:

- **Yucel U***, Smith JS (2024). Mass spectrometry (Chapter 11). In *Food Analysis 6th Ed.* (Ed. by Nielsen S, Ismail P), Springer.
- Kaya E, **Yucel U*** (2023). Advances in cellulose-based packaging films and coatings for food products. *Cellulose - Fundamentals and Conversion into Biofuel and Useful Chemicals* (Ed. by Jeyakumar RB, Ravi YK, Sankarapandian K), IntechOpen, *available online*.

- **Yucel U*** (2016). Intelligent Packaging. Reference Module in Food Sciences (Ed. by Smithers G). Elsevier, pp. 1-5.
- **Yucel U**, Elias RJ, Coupland JN* (2012). Emulsions, nanoemulsions and solid lipid nanoparticles as delivery systems in foods. In Food and Industrial Bioproducts and Bioprocessing (Ed. by Dunford NT), Wiley-Blackwell, pp. 167-184.

Technical Presentations (Oral)

- **Yucel U** (2024 – invited). Emerging approaches for understanding EPS formation and composition. IAFP Latino, November 2024, Santos, Brazil.
- Kaya E, **Yucel U** (2023-invited). Sorghum Oleosomes: Effect of extraction on compositional and structural characteristics. 2023 AOCS Annual Meeting & Expo, Denver, CO (April 30-May 3, 2022).
- **Yucel U*** (2023-invited). The use of EPR spectroscopy for evaluation of food quality. ACS Student Chapter Seminar Series, Truman State University, Kirksville MO (February 17, 2023).
- **Yucel U***, Trinetta V, Bean S (2022-invited). Sorghum DDGS as a renewable source for production of functional packaging films. ACS Spring 2022 Bonding through Chemistry, San Diego, CA (March 20-24, 2022).
- **Yucel U*** (2022-invited). Analysis of lipid radiolysis in irradiated dried meat products. 2022 AOCS Annual Meeting & Expo, Atlanta, GA (May 1-4, 2022).
- **Yucel U*** (2022-invited). Functionality of edible pet food packaging: Toward sustainable and carbon-positive pet food production. KibbleCon, Manhattan, KS (October 2022).
- Trinetta V, **Yucel U** (2021-invited). Use of lipid nanoemulsion-doped anti-fungal packaging films to control postharvest disease in small fruits. Food Packaging Materials: Safety, Active Packaging, & Sustainability Symposium. American Chemical Society (ACS) Spring National Meeting, Philadelphia, PA (April 6, 2021).
- Kaya E*, **Yucel U** (2021-invited). Characterization and analysis of hydrophobicity, interfacial tension and contact angle of acetyl TAG used for various food applications. Biolin Scientific Webinar on “Practical applications for surface tension and contact angle”, virtual (November 30, 2021).
- Molitor A, **Yucel U**, Vipahm J, Jones C, Trinetta V (2020-invited). Salmonella survivability in rendered fats challenged with different levels of moisture and temperature. Petfood Forum, Virtual (originally Kansas City, MO) (September 9-10 & 15-17, 2020).
- Trinetta V, **Yucel U**. (2020-invited). Use of lipid nanoemulsion-doped anti-fungal packaging films to control postharvest disease in small fruits. Food Packaging Materials: Safety, Active Packaging, & Sustainability Symposium. American Chemical Society (ACS) Spring National Meeting, Philadelphia, PA (March 22-26, 2020: *canceled due to COVID-19 pandemic*).
- **Yucel U**. (2020-invited). Controlling colloidal structures to improve food functionality. Biochemistry and Molecular Biophysics Department Seminar Series, Kansas State University, Manhattan, KS (February 5, 2020).
- **Yucel U** (2018-invited). Distribution of small molecules in liposomes and emulsions as a function of their physical structure. In symposium on “Manufacture and Stabilization of W/O and O/W Emulsions for Optimal Shelf-Life”, AOCS Annual Meeting and Expo, Minneapolis, MN (May 6-9, 2018).
- **Yucel U** (2018-invited). Detection and quantification of irradiation history of pet food products. 2018 Petfood R&D Showcase, Manhattan, KS (October 9-10, 2018).
- **Yucel U**, Trinetta V (2017-invited). Versatile antimicrobial delivery system to improve food safety. In symposium on “Nano-enabled packaging to increase food safety and decrease food waste”, Annual IFT Meeting, Las Vegas, NV (June 25 - 28, 2017).
- **Yucel U**, Valesquez C, Potts D, Peterson DG (2013). Effect of Fat Reduction and Related Molecular Interactions on Basic Taste Perception – Saltiness. Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2013).
- **Yucel U**, Hokkanen J, Peterson DG (2013). Nano-structured lipid composites for flavor encapsulation. Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2013).
- **Yucel U**, Peterson DG (2012). Effect of fat reduction on basic taste perception of low moisture foods. Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2012).
- **Yucel U**, Coupland JN (2011). Ultrasonic characterization of dispersions of sugar in vegetable oil. 102nd AOCS Annual Meeting, Cincinnati, OH (May 1-4, 2011).

- **Yucel U**, Bayindirli A, Alpas H (2007). Evaluation of high-pressure pretreatment for enhancing the drying rate of selected fruits and vegetables. 2007 IFT Annual Meeting, Chicago, IL (July 28-August 1, 2007).

Technical Presentations (Poster, **Awards):**

- Uysal U, Boyle D, Critzer F, Trinetta V, Yucel U. 2025. Analysis of *Listeria monocytogenes* biofilms on different surfaces using ATR-FTIR microspectroscopy and GC-MS. Institute of Food Technologists (IFT) FIRST Annual Meeting & Expo, Chicago, IL (July 13-16, 2025). Technical Presentation.
- ****1st Place in Food Chemistry Division****
- Zillinger F, Uysal U, Aramouni F, Trinetta V, Yucel U. 2024. Effect of sorghum grains in kombucha fermentation. American Chemical Society (ACS) Fall 2024 Meeting, Denver, CO (August 17-21, 2024). Technical Presentation.
- Uysal U, Smith M, Amama, PB, Yucel U. 2024. Enhanced photocatalytic removal of pesticide imidacloprid from freshwater using C-doped TiO₂. K-State Graduate School Research and the State, Manhattan, KS (October 30, 2024). Technical Presentation.
- Uysal U, Smith M, Amama, PB, Yucel U. 2025. Enhanced photocatalytic removal of pesticide imidacloprid from freshwater using C-doped TiO₂. K-State HHS RSCAD Forum, Manhattan, KS (March 7, 2025). Technical Presentation.
- Deniz A, Critzer F, Boyle DL, Lacasa J, Yucel U, Trinetta V. 2025. Formation and control of *Listeria monocytogenes* biofilms on various food processing surfaces. K-State Graduate Research, Arts, and Discovery (K-GRAD) Forum, Manhattan, KS (April, 2025). Technical Presentation.
- Deniz A, Critzer F, Boyle DL, Lacasa J, Yucel U, Trinetta V. 2025. Formation and control of *Listeria monocytogenes* biofilms on various food processing surfaces. K-State HHS RSCAD Forum, Manhattan, KS (March 7, 2025). Technical Presentation.
- ****1st place in student poster competition****
- López V, Lacasa J, Yucel U, Aramouni F, Trinetta V. 2025. Effect of grain varieties and microbial cultures on solid-state fermentation of grain sorghum. International Association for Food Protection (IAFP) Annual Meeting, Cleveland, OH (July 27-30, 2025). Technical Presentation.
- Appolon C, Ruiz-Llacsahuanga B, Widmer A, Mmaduabuchi O, Raad R, Pirverdiyeva A, Bhullar M, Yucel U, Trinetta V, Dunn L, Critzer F. 2025. Exploring the synergistic efficacy of lactic acid or peracetic acid and UV-C in the inactivation of *Salmonella* on soiled food contact surface materials. International Association for Food Protection (IAFP) Annual Meeting, Cleveland, OH (July 27-30, 2025). Technical Presentation.
- Galipothu VK, Trinetta V, Nwadike L, Jaber-Douraki M, Bhullar MS. 2025. UV-C disinfection tunnel as a tool in controlling *Listeria* on food contact surfaces. International Association for Food Protection (IAFP) Annual Meeting, Cleveland, OH (July 27-30, 2025). Technical Presentation.
- Allison G, Deniz A, Zelaya J, Phebus R, Yucel U, Drolia R, Critzer F, Trinetta V. 2025. Evaluation of the effectiveness of commonly used sanitation strategies against dual-species biofilms of *Listeria monocytogenes* and *Pseudomonas fluorescens* in the food industry. International Association for Food Protection (IAFP) Annual Meeting, Cleveland, OH (July 27-30, 2025). Technical Presentation.
- Ruiz-Llacsahuanga B, Trinetta V, Bhullar M, **Yucel U**, Critzer F (2024). Effectiveness of novel sanitizers and ultraviolet (UV-C) light to control for *Listeria monocytogenes* in the organic fresh produce industry. IAFP's European Symposium on Food Safety, April 30 – May 2, 2024, Geneva, Switzerland
- Apolon C, Ruiz-Llacsahuanga B, Widmer A, Mmaduabuchi O, Bhullar M, **Yucel U**, Trinetta V, Dunn L, Critzer F (2024). Synergistic efficacy of lactic acid and UV-C in the inactivation of *Listeria monocytogenes* on food contact surface materials. 2024 International Association for Food Protection (IAFP) Annual Meeting, July 14-17, 2024, Long Beach, CA.
- Elias CLA, Cowan J, Amama P, **Yucel U**, Trinetta V (2024). Antimicrobial efficacy of TiO₂ against *Listeria*, *Salmonella*, and *E. coli* in microgreen systems. 2024 International Association for Food Protection (IAFP) Annual Meeting, July 14-17, 2024, Long Beach, CA.
- Stewart S, Ruiz-Llacsahuanga B, Critzer F, Nwadike L, Bhullar M, **Yucel U**, Trinetta V (2024). A validation study for the tree fruit industry: the use of silver dihydrogen citrate (SDC) and chlorine dioxide gas (ClO₂) to control *E. coli* and *Listeria* on picking bags and storage bins. 2024 International Association for Food Protection (IAFP) Annual Meeting, July 14-17, 2024, Long Beach, CA.

- Lopez V, **Yucel U**, Aramouni F, Trinetta F (2024). Microbial and Metagenomic Analysis of Novel Sorghum Kombucha Beverages. 2024 International Association for Food Protection (IAFP) Annual Meeting, July 14-17, 2024, Long Beach, CA.
- Uysal U, Smith M, Amama PB, **Yucel U** (2024). Mitigation of pesticide and herbicide contamination from fresh water using TiO₂ nanoparticles. The Institute of Food Technologists (IFT) FIRST 2024, July 14-17, 2024, McCormick Place, Chicago, IL. (Finalist in student competition)
- Uysal U, Zillinger F, Aramouni F, Trinetta V, **Yucel U** (2024). Effect of Sorghum Grains in Kombucha Fermentation. American Chemical Society Fall 2024 Meeting – Elevating Chemistry, August 18-22, 2024, Denver, CO.
- Kaya E, Aramouni F, **Yucel U**. Sorghum oleosomes and phytochemicals as functional sorghum creations for value-added food applications. Sorghum in the 21st Century, Global Sorghum Conference, Montpellier, France (June 5-9, 2023).
- Li K, **Yucel U**, Aramouni F, Trinetta F. Changes in the structural and functional dynamics of the microbiota of Huangjiu (Chinese-rice-wine) fermentation from different varieties of sorghum. Sorghum in the 21st Century, Global Sorghum Conference, Montpellier, France (June 5-9, 2023).
- Kaya E, Johnson D, Durrett T, **Yucel U**. Response surface methodology optimization of the use of acetyl-triacylglycerol for improving the structure of whey protein foams. 2022 AOCS Annual Meeting & Expo, Atlanta, GA (May 1-4).
****1st place in Analytical Division****
- Kaya E, Durrett T, Bean S, Trinetta V, **Yucel U**. effect of high oleic acetyl triacylglycerol (Ace-TAG) on functional properties of biodegradable sorghum DDGS packaging films. 2022 AOCS Annual Meeting & Expo, Atlanta, GA (May 1-4).
****1st place in Processing Division****
- Trinetta V, **Yucel U**, Critzer F, E, Nwadike L, Bhullar M. Validation study for the tree fruit industry: effective strategies to sanitize harvest bins and picking bags. CPS Annual Meeting, (June 2022).
- Peterson J, Smolensky D, Bean S, **Yucel U**. Improving the functional characteristics of sorghum phenolics. ACS Spring 2022 Bonding Through Chemistry, San Diego, CA (March 20-24, 2022).
- Tonyali B, Smith JS, **Yucel U**. Comparison of GC-MS analysis of 2-DCB and EPR analysis of carbonate radicals for the characterization of irradiation in pig ears. IFT21. July 18-21, 2021.
****1st place in toxicology division****
- Tonyali B, Smith JS, **Yucel U**. Interaction of 2-DCB and internal standard in SPME-coupled GC-MS analysis for irradiated chicken jerky treats. IFT21. July 18-21, 2021.
- Kaya EC, Bean S, Trinetta V, **Yucel U**. Development and characterization of biodegradable sorghum DDGS films. IFT21. July 18-21, 2021.
****3rd place in Analytical Division****
- Kaya EC, Durrett T, **Yucel U**. Effect of high oleic acetyl triacylglycerol (ace-TAG) on functional properties of biodegradable sorghum DDGS packaging films. IFT21. July 18-21, 2021.
- Kaya EC, Bean S, Durrett T, Trinetta V, **Yucel U**. Potential use of DDGS by-product from sorghum production as a biodegradable food packaging film and value-added food products. Midwest Women in Science Conference, Virtual, September 18-19, 2021.
- Peterson J, Smolensky D, Bean S, **Yucel U**. Liposomal vesicles as delivery systems for sorghum phenolics. IFT21. July 18-21, 2021.
- Mayo M, **Yucel U**, Trinetta V. Combination of lauric arginate nanovesicles and organic acids against Shiga toxin-producing Escherichia coli (STECs) on fresh spinach. IFT21. July 18-21, 2021.
- Mayo M, Trinetta V, **Yucel U**. Synergistic antimicrobial activity of cinnamaldehyde and lauric arginate emulsions combined with different organic acids as fresh produce wash-water treatments. IFT21. July 18-21, 2021.
- Tonyali B, Sommers C, Ceric O, Smith JS, **Yucel U**. Characterization of cellulose and dextrose radicals' signals in sweet potato skin and flesh using EPR spectroscopy. IFT20, Virtual (originally Chicago, IL) (July 12-15, 2020).
- Molitor A, **Yucel U**, Vipham J, Jones C, Trinetta V. Effects of different moisture and temperature on Salmonella survival in different type of rendering fat. IAFP Annual Meeting, Virtual (October 26-28, 2020)
- Heermann M, **Yucel U**, Getty K. Development of a laboratory exercise to investigate the functionality of waxy sorghum inclusions in gluten-free sorghum. IFT20, Virtual (originally Chicago, IL) (July 12-15, 2020).

- Tonyali B, McDaniel A, Trinetta V, **Yucel U**. Investigation of kinetic release and crystallization characteristics of packaging films loaded with essential oils. IFT19, New Orleans, LA, (June 2 - 5, 2019).
- Tonyali B, Sommers C, Ceric O, Smith JS, **Yucel U**. EPR spectroscopy analysis of irradiated sweet potato treat extracts. IFT19, New Orleans, LA, (June 2 - 5, 2019).
- Uhl B, **Yucel U**. Characterization of liposomes for delivery small molecules using EPR spectroscopy. IFT19, New Orleans, LA, (June 2 - 5, 2019).
- Uhl B, **Yucel U**. Real-time characterization of self-assembled colloidal dispersions for active delivery of small molecules. IFT19, New Orleans, LA, (June 2 - 5, 2019).
- Taghvaei M, Sommers C, Ceric O, **Yucel U**, Hussain F, Smith JS. The effect of gamma irradiation on lipids in food and model systems. IFT19, New Orleans, LA, (June 2 - 5, 2019)
****1st place in toxicology division****
- Heermann M, **Yucel U**, Getty K. Assessing functionality of artificial sweeteners in rolled sugar cookies in a food science classroom. IFT19, New Orleans, LA, (June 2 - 5, 2019).
- McDaniel A, Chiebao HP, Pliakoni ED, Nwadike L, **Yucel U**, Trinetta V. Effective pack practices: use of antifungal packaging films with cinnamaldehyde nanoemulsions to control postharvest diseases in strawberries. IAFP, Annual Meeting, Louisville KY, July 2019
- Tonyali B, McDaniel A, Trinetta V, **Yucel U** (2018). Investigation of cell size and membrane mobility characteristics of *Escherichia coli* at different growing temperatures. IFT18, Chicago, IL (July 15-18, 2018).
- Tonyali B, Sommers C, Ceric O, Smith J, **Yucel U** (2018). EPR Analysis of Irradiated Sweet Potato Treats. IFT18, Chicago, IL (July 15-18, 2018).
- Taghvaei M, Sommers C, Ceric O, **Yucel U**, Hussain F, Smith JS (2018). Development and validation of analytical testing method to evaluate the irradiation history of chicken jerky treats. IFT18, Chicago, IL (July 15-18, 2018).
- McDaniel A, Tonyali B, **Yucel U**, Trinetta V (2018). Use of lipid nanoemulsion-doped anti-fungal packaging films to control post-harvest disease in small fruits. IAFP, Annual Meeting, Salt Lake City, UT (July 8-11, 2018).
- Kufahl T, Magossi G, McDaniel A, **Yucel U**, Jones C, Trinetta V (2018). Effects of different moisture and temperature on Salmonella survival in poultry fat. IAFP, Annual Meeting, Salt Lake City, UT (July 8-11, 2018).
- Sevdin S, **Yucel U**, Alpas H (2016). Crystal structure of lipid in palm stearin emulsions treated with high hydrostatic pressure. Congress on Food Structure Design, Antalya, Turkey (October 26-28, 2016).
- **Yucel U**, Valesquez C, Potts D, Peterson DG (2013). Effect of Fat Reduction and Related Molecular Interactions on Basic Taste Perception - Saltiness Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2013).
- **Yucel U**, Peterson DG (2013). Nano-structured lipid composites for flavor encapsulation. Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2013).
- **Yucel U**, Peterson DG (2012). Effect of fat reduction on basic taste perception of low moisture foods. Flavor Center and Education Center Annual Meeting, St. Paul, MN (August 7-8, 2012).
- Trinetta V, **Yucel U**, Morgan M, Coupland JN (2012). Versatile antimicrobial delivery systems for essential oils on pathogen and spoilage microorganisms in fruit juices. 2012 IFT Annual Meeting, Las Vegas, NV (June 25-28, 2012).
- **Yucel U**, Elias RJ, Coupland JN (2012). Effects of surface characteristics of solid lipid nanoparticles on solute distribution. 2012 IFT Annual Meeting, Las Vegas, NV (June 25-28, 2012).
- Berton-Carabin CC, **Yucel U**, Elias RJ, Coupland JN (2012). Effect of surface properties of solid or liquid oil droplets on the distribution and reactivity of a model lipophilic ingredient in nanoemulsions. The 103rd AOCS Annual Meeting, Long Beach, CA (April 29 - May 2, 2012).
- **Yucel U**, Elias RJ, Coupland JN (2011). Effect of droplet size and crystallinity on the efficiency of emulsions as delivery systems. 2011 IFT Annual Meeting, New Orleans, LA (June 11-14, 2011).
- **Yucel U**, Calaman SK, Coupland JN (2011). Ultrasonic characterization of mixing and sedimentation in unimodal and bimodal sucrose-in-oil dispersions. The 102nd AOCS Annual Meeting, Cincinnati, OH (May 1-4, 2011).
- **Yucel U**, Coupland JN (2010). Ultrasonic monitoring of lactose crystallization. 2010 IFT Annual Meeting, Chicago, IL (July 17-20, 2010).

- **Yucel U**, Elias RJ, Coupland JN (2010). Physicochemical characterization of emulsion based delivery systems by electron paramagnetic resonance (EPR) spectroscopy. 2010 IFT Annual Meeting, Chicago, IL (July 17-20, 2010).
- **Yucel U**, Coupland JN (2009). Ultrasonic measurements of crystal dispersions. Conference of Food Engineering, Columbus, OH (April 5-8, 2009).
- Vardhanabhuti B, **Yucel U**, Coupland JN, Foegeding EA (2008). Interaction between β -lactoglobulin and dextran sulfate at near neutral pH and their effect on thermal stability. ADSA-ASAS (July 7-11, 2008).
- **Yucel U**, Alpas H, Bayindirli A (2005). Evaluation of high pressure pretreatment for enhancing the drying rate of selected fruits and vegetables. TUBITAK MRC-Food Inst. 1st International Food and Nutrition Congress, Turkey (June 15-18, 2005).

PROFESSIONAL SERVICE

Institutional Mentorship and Leadership

- Co-advisor of the Food Science Club and associated IFT Student Chapter.
- Member of the evaluation committee for Food Science graduate student admissions
- Member of the Food Science Graduate Program Coordinating Committee
- Chair for the Outstanding Senior in Food Science award
- Panelist at ISGP podcast: Innovative Foods and Food Ingredients
- Analytical service for utilization of GC-MS, LC-MS, FT-IR, IR microscopy, particle size and zeta potential, surface rheology, hydrophobicity, etc. for various research needs.

Professional service and membership

- ***Institute of Food Technologists (IFT)***
 - Member (2007- present)
 - KC-IFT Director-at-Large (2019-present)
 - IFT Food Chemistry Division
Chair, 2020-2021; Past Chair, 2021-2022
Member-at-Large (2022-present)
- Member of the International Society of Food Engineering (IFSE) (2009-2012)
- Member of the American Oil Chemists' Society (AOCS) (since 2008)
- Member of the American Chemical Society (since 2012)
- Member of the Honor Society of Agriculture, Gamma Sigma Delta (2018-2020)
- Editorial Board of Food Research International
- Editorial Board of Foods
- Content Editor of Journal of Future Foods
- Grant reviewer for USDA-AMS
- Grant reviewer for Scientific and Technological Research Council of Turkey (TUBITAK)
- *Ad hoc reviewer for:* Food and Function; Food Chemistry; Food Hydrocolloids; Food Research International; Foods; Innovative Food Science and Emerging Technologies; International Journal of Food Science and Technology; Journal of Agricultural and Food Chemistry; Journal of Dairy Science; Journal of Food Engineering; Journal of Food Science; Journal of the American Oil Chemists' Society; LWT – Food Science and Technology.