Prof. Dr. Sevcan Ünlütürk
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Department of Food Engineering
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Research Interests

Dr. Ünlütürk´s research has been on non-thermal processing of liquid and solid foods, mathematical modeling of UV systems, rheological behavior of food materials, the biocrystallizaton method and image processing technique for evaluation of the food quality. Recent research efforts have focused on development of innovative solutions for various nutritious food products with consumer desired quality attributes and valorization of food wastes. Artificial intelligence (AI) applications in food processing have also become a part of Dr. Ünlütürk's research areas in recent years.
More information about Dr. Ünlütürk's research, teaching or projects can be found at https://unluturkresearchgroup.iyte.edu.tr/

https://www.linkedin.com/feed/?trk=people-guest_profile-result-card_result-card_full-click

https://scholar.google.com.tr/citations?hl=tr&user=dB7EUzEAAAAJ

https://www.researchgate.net/profile/Sevcan_Unluturk

https://publons.com/researcher/1301726/sevcan-unluturk/

EDUCATION

Doctor of Philosophy in Chemical Engineering 1996 - 2002
Illinois Institute of Technology (IIT), Chicago, IL/USA
Master of Science in Chemical Engineering
Illinois Institute of Technology (IIT), Chicago, IL/USA 1993 - 1995
Bachelor of Science in Food Engineering 1987 - 1992
Ege University, Izmir/Turkey

WORK EXPERIENCE

Professor, Izmir Institute of Technology 2017 - present
Food Engineering Department, Urla, İzmir, Turkey
Associate Professor, Izmir Institute of Technology 2012 - 2017
Food Engineering Department, Urla, İzmir, Turkey
Assistant Professor, Izmir Institute of Technology 2003 - 2012
Food Engineering Department, Urla, İzmir, Turkey
Research Assistant, Izmir Institute of Technology 2003 - 2003
Food Engineering Department, Urla, İzmir, Turkey
Teaching Assistant, Illinois Institute of Technology 1999 - 2002
Chemical Engineering Department, Chicago, IL/USA
Intern, City of Chicago, Department of Water 2001 - 2001
Bureau of Water Quality, Water Purification Laboratory, Chicago, IL/USA

PATENT

1. Polygalacturonase enzyme from Aspergillus sojae DH56 and its production from a formulated low cost (orange peel waste) media. Inventors: Canan Tari; Ali Oguz Buyukkileci; Sevcan Unluturk; Marcelo Fernandez Lahore; Doreen Heerd. Turkish Patent: TPE No: TR201205330B patent no: 2012/05330
2. A System and Method for Determining the Amount of Adulteration in a Food Product. Turkish patent application number: 2023/017941

PUBLICATIONS IN INTERNATIONAL PEER REVIEWED JOURNALS (Last 5 years)

1. Kaya Z., Unluturk S., Martin-Belloso O., Soliva-Fortuny R.* (2020). Effectiveness of pulsed light treatments assisted by mild heat on Saccharomyces cerevisiae inactivation in verjuice and evaluation of its quality during storage. Innovative Food Science and Emerging Technologies, 66, 102517. DOI: 10.1016/j.ifset.2020.102517

2. Demir, H., Yıldız, M.K., Becerikli, İ., Unluturk, S. and Kaya, Z. (2020). Impact of Pasteurization Process on the Quality and Marination Properties of Onion Juice. Turkish Journal of Agriculture - Food Science and Technology, 8(3), 531-537. DOI: 10.24925/turjaf.v8i3.531-537.2715
3. Yildiz, S., Pokhrel, P.R., Unluturk S., Barbosa-Cánovas G.V. (2021). Shelf life extension of strawberry juice by equivalent ultrasound, high pressure, and pulsed electric fields processes. *Food Research International*.140, 110040. DOI: 10.1016/j.foodres.2020.110040
4. Baykuş G., Akgün M.P., Unluturk S. (2021). Effects of Ultraviolet-light Emitting Diodes (UV-LEDs) on Microbial Inactivation and Quality Attributes of Mixed Beverage Made from blend of carrot, carob, ginger, grape and lemon juice. *Innovative Food Science and Emerging Technologies*, *67, 102572*. DOI: 10.1016/j.ifset.2020.102572
5. Yildiz S., Pokhrel, P.R., Unluturk S., Barbosa-Cánovas G.V. (2021). Changes in Quality Attributes of Strawberry Juice after Equivalent High Pressure, Ultrasound, Pulsed Electric Fields Processes. *Food Engineering Reviews*, DOI: 10.1007/s12393-20-09250-z
6. Cankal, Y.S., Unluturk, M.S., Unluturk, S. (2023) Fluence (UV Dose) Distribution Assessment Of UV-C Light At 254 nm on Food Surfaces Using Radiochromic Film Dosimetry Integrated With Image Processing And Convolutional Neural Network (CNN). Innovative Food Science and Emerging Technologies, 88, 103439. DOI: 10.1016/j.ifset.2023.103439
7. Unluturk S., Sirin P. and Unluturk M.S. (2023). Estimating Viscosity of Low Sugar Apple Marmalade Using Backpropagation Neural Network. *Agriculture & Food*, Vol 11, 87-95.
8. Berk B., Cankal YS, Köroğlu E, Yorulmaz H, Çavdaroğlu E, Ünlütürk S. (2024). The effect of starch types on extensional, linear and nonlinear rheological properties of starch cracker dough. *International Journal of Biological Macromolecules*, 133848. DOI: 10.1016/j.ijbiomac.2024.133848
9. Baykus G and Unluturk S. (2024). Cold Pressed Vs. Centrifugal Juice: Comparison In Terms Of The Juice Yield, Physicochemical And Phytochemical Properties. *Food Science and Engineering*, vol 5(1), 145-154. http://ojs.wiserpub.com/index.php/FSE/

BOOK CHAPTERS (Last 5 years)

Seyfi Y, Baykuş G., Unluturk S. (2021). Recent Advances in Non-Thermal Food Processing Technology for Grain Industries. In: M. Selvamuthukumaran (Ed.), Non-Thermal Processing Technologies for the Grain Industry, 1st Ed., CRC Press, Taylor & Francis Group, Baco Raton, p 1-34, ISBN: 978-0-367-60857-6, https://doi.org/10.1201/9781003109501

Taze, B.H., Akgun, M.P., Yildiz, S., Kaya, Z., Unluturk, S., (2021). UV Processing and Storage of Liquid and Solid Foods: Quality, Microbial, Enzymatic, Nutritional, Organoleptic, Composition and Properties Effects. In: Knoerzer, K., Muthukumarappan, K. (Eds.), Innovative Food Processing Technologies: A Comprehensive Review, vol. 2. Elsevier, pp. 277–305. ISBN: 9780128157824, https://doi.org/B978-0-08-100596-5.22938-7.

Atilgan, M.R., Yildiz, S., Kaya, Z., Unluturk, S., (2021). Kinetic and Process Modeling of UV-C Irradiation of Foods. In: Knoerzer, K., Muthukumarappan, K. (Eds.), Innovative Food Processing Technologies: A Comprehensive Review, vol. 2. Elsevier, pp. 227–255. https://doi.org/B978-0-08-100596-5.22972-7.

Cankal Y.S., Unluturk S. (2024). Light-Emitting Diodes: Mechanism of Inactivation of Microorganisms and Effects on Different Microorganisms. In: Nonthermal Light-Based Technologies in Food Processing (Editors: C K Sunil, Megh R Goyal, Preeti Birwal and R Mahendran)" under book series: Innovations in Agricultural and Biological Engineering. Apple Academic Press (Co-publishing with CRC Press)

Cankal Y.S., Unluturk S. (2024). Applications of Light-Emitting Diodes in Liquid Foods. In: Nonthermal Light-Based Technologies in Food Processing (Editors: C K Sunil, Megh R Goyal, Preeti Birwal and R Mahendran)" under book series: Innovations in Agricultural and Biological Engineering. Apple Academic Press (Co-publishing with CRC Press)

INTERNATIONAL CONFERENCES (Last 5 Years)

1. Sonkaya G., Öztürk M.U., Gündüz G.T., Kışla D., Ünlütürk S, Koca N*. The effect of continuous system ultraviolet light application on the quality of kaymak (clotted cream)., 2nd International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2020), Book of Abstracts, p 178, Gaziantep, Turkey, October 07-09, 2020
2. Seyfi Y., Unluturk S. Unluturk M.S. (2022). UV Dose Determination On Food Surfaces By Image Processing Technique. XIII International Agriculture Symposium "AGROSYM 2022", 6-9 October 2022, Bosnia and Herzegovina

3. Seyfi Y., Unluturk S. Unluturk M.S. (2022). The Actinometric And Radiochromic Film Dosimetry Techniques For Determining UV Fluence (Dose). 7th International Food safety Congress, 3-4 November, 2022, Istanbul, Turkey
4. Unluturk S., Şirin P., Unluturk M.S. (2023) Estimating Viscosity of Low sugar Apple Marmalade Using Backpropagation Neural Network. Agriculture & Food, 11th International Conference, 14-17 August 2023, Burgas, Bulgaria.

THESIS SUPERVISED

1. Atılgan, M.R., "*Disinfection of liquid egg products by using UV light*", İzmir Institute of Technology, 2007 – MS Thesis
2. Öncü, Ş., "*Investigation of the effects of dissolved oxygen concentration, aeration and agitation on the morphology and rheology in submerged fungal fermentation*", İzmir Institute of Technology, 2007 – MS Thesis
3. Yıldız, Ö., *"Antibiyotikli sütlerin fiziksel ve kimyasal özeliklerinin belirlenmesi"*, İzmir Institute of Technology, 2008 – MS Thesis
4. Hakgüder B., "*Bazı Meyve Sularının UV ile dezenfeksiyonu"*, İzmir Institute of Technology, 2009 – MS Thesis
5. Pelvan M., "*Determination of Antibiotics in Raw and UHT milk samples by image forming method of biocrystallization*", İzmir Institute of Technology, 2011 – MS Thesis
6. Kaya Z., "*Disinfection of White Grape Juice by Using Continuous Flow UV reactor*", İzmir Institute of Technology, 2011 – MS Thesis
7. Şirin P. "The physical properties and glycemic response of low sugar jam", İzmir Yüksek Teknoloji Enstitüsü, 2016– MS Thesis
8. Baykuş G., "Investigation Of Applicability Of Uv Light Emitting Diodes (UV-LEDs) As An Alternative Technology In Pasteurization Of Cold-Pressed And Newly Formulated Mixed Beverage", İzmir Yüksek Teknoloji Enstitüsü, 2022 – MS Thesis
9. Cankal Seyfi Y., "Investigation Of The Usability Of Radiochromic Films For Determination Of Dose Uniformity Of Food Surface In UV-C Treatment", İzmir Yüksek Teknoloji Enstitüsü, 2022 – MS Thesis
10. Atılgan M. R. "*Design of a continuous flow UV reactor for opaque liquid foods by using computational fluid dynamics (CFD)*", İzmir Institute of Technology, 2013 – Ph.D. Thesis
11. Taze B.H. "*Investigation of the effects of different processing techniques on the overall quality and shelf life of the local apricot varieties of Iğdır*." İzmir Institute of Technology, 2017 – Ph.D. Thesis
12. Yıldız S. "*Bioactive compound retention and shelf life extension of strawberry juice by selected non-thermal processing technologies",* İzmir Institute of Technology, 2017– Ph.D. Thesis
13. Kaya Z. "*Development of different koruk (unripe grape) products by using several processing techniques*". İzmir Institute of Technology, 2018– Ph.D. Thesis
14. Akgün M."*Assessment of the efficiency of UV-C light emitting diodes (UV LEDs) for fruit juice pasteurization"*. İzmir Institute of Technology, 2019 – Ph.D. Thesis

PROJECTS (LAST 5 YEARS)

1. Investigation of the effect of various environmental conditions on wheat germination and bioactive compounds of wheat sprouts. Scientific Research Project – 2019IYTE0005, Principal investigator, 2019-2020
2. Use of Radiochromic Films in UV Dose Determination. Scientific Research Project –2020IYTE0028, Principal investigator, 2020-2021
3. Production of Radiochromic Film to Determine UV Dose Distribution on Food Surfaces. Scientific Research Project 2023IYTE-1-0015, Principal investigator, 2023-2024
4. Investigation of the Effect of Laser and Needle Micro-Perforation Pretreatments on Drying Time and Some Quality Characteristics of Kavacık Grape. Scientific and Technological Research Council of Turkey (TUBITAK), 223O043, Principal investigator, 2023-2024
5. Rapid adulteration screening test in honey. Yaşar University BAP project, BAP135, Researcher, 2023-2024
6. Development of IoT Software and Hardware Platform for Blockchain Based Traceability in Food Value Chain, Technology and Innovation Funding Programs Directorate (TEYDEB), Consultant, 2023-2024