

# Sevcan Erşan Ceylan

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## Education

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PhD in Biotechnology - Yeditepe University, Istanbul, Turkey	03/2011 – 10/2017
MS in Food Engineering - Istanbul Technical University (ITU), Istanbul, Turkey	09/2008 – 02/2011
BS in Food Engineering - Istanbul Technical University (ITU), Istanbul, Turkey	09/2003 – 07/2008
Exchange student in Food Science and Nutrition - Ghent University, Gent, Belgium	08/2006 – 06/2007

## Research Experience

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Postdoctoral Researcher *with Prof. Jun Park* 03/2020 – Present  
In Chemical and Biomolecular Engineering, UCLA, LA

Research Title – Investigations into central carbon and folate metabolism

- Developed liquid chromatography-mass spectrometry (LC-MS) based method for folate species
- Conducted exploratory research to investigate the impact of dietary bioactive compounds on cancer cell metabolism, utilizing techniques such as cell culture, LC-MS metabolomics and isotope tracers
- Collaborated on metabolomics research, focusing on microbial conversion of CO<sub>2</sub> into chemicals

Postdoctoral Researcher *with Prof. Reinhold Carle* 10/2017 – 03/2019  
In Plant Foodstuff Technology and Analysis, University of Hohenheim, Stuttgart, Germany

- Developed LC-MS methods for analysis of polyphenolics and carotenoids from food waste
- Investigated color enhancing chemical interactions between anthocyanins and polyphenolics

Visiting Graduate Researcher *with Prof. Reinhold Carle* 09/2015 – 10/2017  
In Plant Foodstuff Technology and Analysis, University of Hohenheim, Stuttgart, Germany

- Developed sustainable extraction methods to recover polyphenolic compounds from plant materials
- Developed validated LC-DAD-MS method to accurately determine polyphenolic compounds

Graduate Researcher *with Prof. Özlem Güçlü Üstündağ* 02/2011 – 09/2015  
In Food Engineering, Yeditepe University, Istanbul, Turkey

PhD Thesis - Utilization of pistachio by-products for the recovery of phenolic antioxidants

- Established a customized laboratory scale subcritical water extraction unit as sustainable process
- Applied the developed extraction unit to turn food processing by-products into valuable chemicals
- Characterized chemical composition, polyphenolic compounds and evaluated antioxidant and antimicrobial biological activities
- Contributed to European Union project PLPWETEA (Value Added Utilization of Black Tea By-products using Pressurized Low Polarity Water Extraction for the Development of Bioactive Extracts)

Graduate Researcher *with Prof. Gürbüz Güneş & Prof. Beraat Özçelik* 09/2009 – 02/2011  
In Food Engineering, Istanbul Technical University (ITU), Istanbul, Turkey

MS Thesis – Use of *Bacillus indicus* HU36 in yoghurt production and its effects on quality

- Developed functional products enriched with probiotic bacteria
- Assessed for product quality through analysis of texture, rheology and sensory evaluations.
- Contributed to European Union 7th Framework project COLORSPORE (New sources of natural, gastric stable food additives, colorants, and novel functional foods)

Undergraduate Researcher *with Prof. Gürbüz Güneş* 09/2007 – 06/2008  
In Food Engineering, Istanbul Technical University (ITU), Istanbul, Turkey

BS Graduation Project – Modified Atmosphere Packaging of Pomegranate Arils

- Measured respiration rate of pomegranate arils as affected by O<sub>2</sub> and CO<sub>2</sub> levels
- Designed a modified atmosphere packaging (MAP) solution for pomegranate arils
- Analyzed changes on the antioxidant activity of pomegranate arils during storage in MAP
- Contributed to European Union 6th Framework project FLORA (Flavonoids and related phenolics for healthy Living using Orally Recommended Antioxidants)

## Awards and Honors

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- Postdoctoral Fellow – NSF BioPACIFIC MIP at CNSI at UCLA and UCSB 2021
- Scientific Publication Incentives - The Sci Technol Res Council Turkey (TÜBİTAK) 2016 – 2018
- National Graduate (PhD) Scholarship in Priority Research Areas – TÜBİTAK 09/2014 – 08/2017
- European Union Erasmus Internship Grant - University of Hohenheim 08/2016
- International Research Fellowship Programme for PhD Students – TÜBİTAK 04 – 09/2016
- Conference Attendance and Travel Grants - Yeditepe University 2011 – 2014
- Graduate Scholarship & Assistantship - Yeditepe University 04/2011 – 09/2015
- Graduate Education Scholarship - Yasar Education and Foundation, Turkey 09/2009 – 06/2010
- European Union Exchange Student Grant - Ghent University 08/2006 – 06/2007

## Publications

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### Peer-review journal articles

1. Xie Y, **Erşan S**, Guan X, Wang J, Sha J, Xu S, Wohlschlegel J. A, Park JO, Liu C. **2023**. Unexpected metabolic rewiring of CO<sub>2</sub> fixation in H<sub>2</sub>-mediated materials-biology hybrids. *Proceedings of the National Academy of Sciences* 120, e2308373120.
2. Ozturk A, Steingass CB, Schweiggert R, Carle R, Yemis O, **Erşan S**. **2023**. Ultrasound-assisted extraction and (U)HPLC-DAD-ESI-MS<sup>n</sup> analysis of phenolic compounds from black chokeberries cultivated in Turkey. *Journal of Applied Botany and Food Quality* 96, 21-29.
3. Guan X, **Erşan S**, Hu X, Atallah TL, Xie Y, Lu S, Cao B, Sun J, Wu K, Huang Y, Duan Y, Caram JR, Park JO, Liu C. **2022**. Maximizing light-driven CO<sub>2</sub> and N<sub>2</sub> fixations in biology-material hybrids. *Nature Catalysis* 5, 1019-1029.
4. **Erşan S**, Müller M, Reuter L, Carle R, Müller-Maatsch J. **2022**. Co-pigmentation of strawberry anthocyanins with phenolic compounds from rooibos. *Food Chemistry: Molecular Sciences* 4, 100097.
5. Law RC, Lakhani A, O'Keeffe S, **Erşan S**, Park JO. **2022**. Integrative metabolic flux analysis reveals an indispensable dimension of phenotypes. *Current Opinion in Biotechnology* 75, 102701.
6. **Erşan S**, Park JO. **2020**. Light-independent biological conversion of CO<sub>2</sub>. *Joule* 4, 1-5.
7. **Erşan S**<sup>†</sup>, Berning JC<sup>†</sup>, Esquivel P, Jimenez VM, Carle R, May B, Schweiggert RM, Steingass CB. **2020**. Phytochemical and mineral composition of fruit and seeds of wild-growing *Bactris guineensis* (L.) H.E. Moore palms from Costa Rica. *Journal of Food Composition and Analysis* 94, 103611. (†indicates equal contributions)
8. Wen X, **Erşan S**, Li M, Wang K, Steingass CB, Schweiggert RM, Ni Y, Carle R. **2019**. Physicochemical characteristics and phytochemical profiles of yellow and red *Physalis* (*Physalis alkekengi* L. and *P. pubescens* L.) fruits cultivated in China. *Food Research International* 120, 389-398.
9. **Erşan S**, Guclu-Ustundag Ö, Carle R, Schweiggert R. **2018**. Subcritical water extraction of phenolic and antioxidant constituents from pistachio (*Pistacia vera* L.) hull. *Food Chemistry* 253, 46-54.
10. **Erşan S**, Guclu-Ustundag Ö, Carle R, Schweiggert R. **2017**. Determination of pistachio hull phenolics by HPLC-DAD-ESI/MS<sup>n</sup> and UHPLC-PDA-ELSD after ultrasound-assisted extraction. *Journal of Food Composition and Analysis* 62, 103-114.
11. **Erşan S**, Guclu-Ustundag Ö, Carle R, Schweiggert R. **2016**. Identification of phenolic compounds in red and green pistachio (*Pistacia vera* L.) hulls (exo- and mesocarp) by HPLC-DAD-ESI-(HR)-MS<sup>n</sup>. *Journal of Agriculture and Food Chemistry* 64, 5334-44.
12. Guclu-Ustundag O, **Erşan S**, Özcan E, Özcan G, Kayra N, Ekinçi FY. **2016**. Black tea processing waste as a source of antioxidant and antimicrobial phenolic compounds. *Food Research and Technology* 242, 1523-1532.
13. **Erşan S**, Gültekin-Ozguven M, Berkaş I, Erdem O, Tuna E, Gunes G, Ozcelik B. **2016**. Use of *Bacillus indicus* HU36 as a probiotic culture in set-type recombined non-fat yoghurt production and its effects on quality. *International Journal of Dairy Technology* 69, 81-88.
14. Erdem Ö, Gültekin-Özgüven M, Berkaş I, **Erşan S**, Tuna HE, Karadağ A, Özçelik B, Güneş G, Cutting SM. **2014**. Development of a novel symbiotic dark chocolate enriched with *Bacillus indicus* HU36, maltodextrin and lemon fiber: optimization by response surface methodology. *LWT - Food Science and Technology* 56, 187-193.

## Book chapter

1. **Erşan S**, Müller-Maatsch J. 2022. Carotenoids in Gac Fruit Aril - Structure and Bioaccessibility. In: *Gac fruit: advances in cultivation, utilization, health benefits and processing technologies*. Eds. M. Nguyen and T.C. Kha. CABI Publishing, CAB Int., NY.

## Teaching Experience

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**Guest lecturer and laboratory teaching assistant**, University of Hohenheim, Stuttgart, Germany. 09/2018  
Course (MS level): Analysis and Quality Assurance in Food Production

**Laboratory teaching assistant**, Yeditepe University, Istanbul, Turkey 03/2011 – 10/2014  
Courses (BS level): Food Analysis, Food Microbiology, Food Eng. Unit Operations (Fluid mechanics)

## Mentorship Experience

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### Training

- Center for the Improvement of Mentored Experiences in Research (CIMER) Entering Mentoring Training Program (6 h training), Bioscience Postdoctoral Affairs at UCLA, LA, CA 03/2022

### Research mentees

- 1 Trainee (Undergraduate) – UCLA 2022  
Trained in the fundamentals of cell culture techniques.
- 2 Trainees (Undergraduate) – UCLA Summer 2021  
Conceptualized and mentored summer projects, provided training in cell culture techniques, and LC-MS analysis of metabolites, guided one to publish research results as poster communications (Presentations #1 and 2)
- 1 Trainee (Graduate) – University of Hohenheim 2018  
Conceptualized research project, provided laboratory training for chemical techniques, and guide to publish results as lead author (Journal article #2)
- 2 Trainees (Graduate and undergraduate)– University of Hohenheim 2017  
Conceptualized an MS and a BS project and provided laboratory trainings.
- 1 Trainee (Undergraduate) - Yeditepe University 2015  
Conceptualized graduation project, provided laboratory training, and guide to publish results as a conference communication (Presentation #5).

## Proceedings

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1. Kayra N, Ozan G, Ozcan E, **Erşan S**, Ekinci FY, Guclu-Ustundag O. 2014. Subcritical water extraction of phenolic compounds from black tea processing waste. Proceedings of 14th European Meeting on Supercritical Fluids, May 18-21, Marseille, France, 94, International Society of Advancement of Supercritical Fluids, ISBN: 978-2-37111-002-1.
2. **Erşan S**, Guclu Ustundag O. 2013. Value added utilization of black tea factory waste: Antioxidant activity and phenolic content. Proceedings of FASE 2013 International Conference on Food and Biosystems Engineering, May 30-June 2, Skiathos, Greece, Eds. K. Petrotos, A. Filistas, Vol 1. pp. 207-214.
3. Guclu Ustundag O, Guclu U, **Erşan S**. 2013. Predictive modeling of subcritical water solubility with artificial neural networks. Proceedings of the 10th Conference on Supercritical Fluids and their Applications, April 29-May 6, Naples, Italy, Eds. E. Reverchon, I. De Marco, pp. 387-392.
4. Guclu-Ustundag O, Guclu U, **Erşan S**. 2012. Application of artificial neural networks for the modeling of lipid solubility in supercritical carbon dioxide. Proceedings of 10th International Symposium on Supercritical Fluids, May 13-16, San Francisco, USA.
5. **Erşan S**, Gunes G, Zor AO. 2009. Respiration rate of pomegranate arils as affected by O<sub>2</sub> and CO<sub>2</sub>, and design of modified atmosphere packaging. Acta Hort. (ISHS), 876, 189-196.
6. Ozcelik B, Karadag A, **Ersan S**. 2009. Bioencapsulation of beta-carotene in three different methods. Proceedings of the XVIIth International Conference on Bioencapsulation, Sept. 24-26, Groningen, Netherlands, pp. 24-26.

## Presentations

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‡ indicates presenter

1. Gyung Lee S‡, **Ersan S**, Park JO. 2021. Gallic Acid Upregulates Glycolysis and Depletes Tricarboxylic Acid Cycle Intermediates in H1299 Human Non-small Cell Lung Cancer Cells, The Annual Biomedical Research. Conference for Minority Students (ABRCMS). November 10–13, 2021, Virtual – Poster
2. Gyung Lee S‡, **Ersan S**, Park JO. 2021. Gallic Acid Upregulates Glycolysis and Depletes Tricarboxylic Acid Cycle Intermediates in H1299 Human Non-small Cell Lung Cancer Cells, [UCLA Samueli School of Engineering Research Journal 2021](#). p. 38. – Poster
3. **Ersan S**‡. 2018. Utilization of Pistachio Hull for the Recovery of Phenolic Antioxidants: Characterisation and Extraction Studies, ISEKI-Food Conference, Food Waste Recovery Workshop, June 2, 2018, Stuttgart, Germany – Oral
4. **Ersan S**‡. 2017. Pistachio Processing By-Product as a Source of Phenolic Compounds, WALA Heilmittel GmbH, Workshop for PhD students, July 8, 2016, Stuttgart, Germany – Oral
5. Durukan F, **Ersan S**, Guclu-Ustundag O. 2015. Utilization of pistachio skin waste as a source of phenolic antioxidants. 1st International Conference on Green Chemistry and Sustainable Technologies (GCSTI 2015), Izmir, Turkey – Poster
6. Özan G, Kayra N, **Ersan S**, Özcan E, Ekinci FY, Guclu-Ustundag O‡. 2014. Black tea waste as a source of antimicrobial phenolics. 8th International Conference on Polyphenols Applications: ISANH Polyphenols 2014, June 4-6, Lisbon, Portugal – Poster
7. Erdem Ö, Gültekin-Özguven M, Berktaş I, **Ersan S**, Tuna HE, Karadağ A, Özçelik B, Güneş G, Cutting SM. 2013. Development of a novel synbiotic dark chocolate enriched with *Bacillus indicus* HU36, maltodextrin, and lemon fiber: Optimization by response surface methodology. ISNFF 2014 Annual Conference and Exhibition, Functional Foods, Nutraceuticals, Natural Health Products, and Dietary Supplements, Istanbul, Turkey, 14-17 October 2014. p.152, p. 247 – Poster
8. Gultekin Ozguven M‡, Erdem O, Berktaş I, **Ersan S**, Tuna HE, Karadag A, Paslı AA, Ozcelik B, Gunes G, Cutting S. 2013. Production of symbiotic chocolate production enriched with *B. indicus* HU36, maltodextrin, and lemon fiber: Optimization with response surface methodology, Probiotics and Functional Food Congress with International Participation, 11-13 April, Side-Antalya, Turkey – Poster
9. **Ersan S** ‡, Ozcan E, Ekinci FY, Guclu Ustundag O. 2013. Antioxidant capacity, total phenolic content and antimicrobial activity of black tea processing waste as affected by extraction solvent. Proceedings of Eurofoodchem XVII, Revised Edition, Ed. H. Koksall, p. 788, May 7-10, Istanbul, Turkey – Poster
10. **Ersan S** ‡, Ozcan E, Ekinci Y, Guclu Ustundag O. 2012. Black tea waste as a source of bioactive phenolic compounds: Antioxidant capacity, antibacterial activity, and anticancer effect. Proceedings of the 6th ISANH Congress on Polyphenols Applications: Paris Polyphenols, 7-8 June, Paris, France, p. 66 – Poster
11. **Ersan S**, Gultekin-Ozguven M, Berktaş I, Erdem O, Tuna HE, Gunes G, Ozcelik B‡. 2011. The use of potentially probiotic culture *Bacillus indicus* HU36 in yoghurt production and its effects on quality. IFT Annual Meeting & Expo 2011, June 11-14, New Orleans, Louisiana, USA – Poster
12. **Ersan S** ‡, Gultekin-Ozguven M, Tuna E, Davarci F, Gunes G, Ozcelik B. 2011. Viability of potentially probiotic culture *Bacillus indicus* HU36 in yoghurt supplemented with prebiotics, and its effects on physical properties. Novel Approaches in Food Industry, International Food Congress, May 26-29, Cesme, Izmir, Turkey – Poster
13. Erdem O‡, Gultekin-Ozguven M, Tuna E, Berktaş I, **Ersan S**, Ozcelik B. 2011. Development of a novel potentially probiotic fruit flavored dairy beverage. Novel Approaches in Food Industry, International Food Congress, May 26-29, Cesme, Izmir, Turkey – Poster
14. Gultekin Ozguven M, Karadag A, **Ersan S**, Karaali A, Ozcelik B. 2011. Valorization of low-quality edible oil by carotenoids formed by *Bacillus indicus* HU36. 102nd AOCS Annual Meeting & Expo Lipid Oxidation and Quality Posters, Cincinnati, Ohio, USA – Poster
15. **Ersan S**, Gunes G‡, Zor AO, Demir N. 2009. Effect of modified atmosphere packaging on phenolics, anthocyanins and antioxidant activity of pomegranate arils, IFT Annual Meeting & Expo 2009, Anaheim, California, USA – Poster

## Professional Experiences

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### Reviewer

- Reviewed > 30 journal articles from 11 Science Direct/ACS/MDPI journals 2017 – Current  
<https://www.webofscience.com/wos/author/record/I-1404-2019>
- Reviewed 3 research funding application submitted to the Estonian Research Council 2019-2020

### Conference Reviewer

- Reviewer for technical research abstracts, the Nutraceutical & Functional Foods Division and Fruit & Vegetable Products Division – Institute of Food Technologists (IFT) FIRST Annual Event 2022 02/2022

## Other Experiences

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### Traineeships

- 2-weeks-Summer School in Costa Rica on “Food and Nutrition Security from the planetary to the household level”, University of Costa Rica, San Jose, Costa Rica. 10/2018
- European Union Leonardo da Vinci Life-Long Learning Program, 2-weeks-Intensive Course on “Process Intensification by High-Pressure Technologies-Actual Strategies for Energy and Resources Conservation”, Technical University of Darmstadt, Darmstadt, Germany. 07/2013
- European Commission, Leonardo Da Vinci Life-Long Learning Program 2007-2013, F4ST-From Farm to Fork Food Safety Specialist Training Program, coordinated by Kalite System Laboratory Group (currently Mérieux NutriSciences), Istanbul, Turkey. 01 – 12/2008
- European Commission Socrates Program, 2-weeks-Intensive Course “Food and Health”, Technical University of Cluj Napoca, Romania. 02/2007

### Internships

- Consulting to food traders, All Food Foreign Traders Association, Istanbul, Turkey. 06 – 07/2009
- Food quality control in a pasta production factory, GIDASA Piyale, A.S, Turkey. 07/2007
- R&D laboratory, and ISO 17025 food quality system applications, Kalite System Laboratory Group (currently Mérieux NutriSciences), Istanbul, Turkey. 07/2006
- Quality control laboratories, Military Food Quality Control Lab., Istanbul, Turkey. 07/2005

### Other

- Graduate Assistant, European Union Research Office, ITU, Istanbul, Turkey. 08/2009 – 02/2010