

Luis Fernando Castro, Ph.D.
Assistant Professor, School of Food Science
California Polytechnic State University
San Luis Obispo, CA 93407-0258
(509) 339-4136
lfcastro@calpoly.edu

EDUCATION

Washington State University **Pullman, WA**
Ph.D. Food Science **2013**
Dissertation: The Impact of Flavor Components and their Interactions on the Sensory Perception of Beer

Washington State University **Pullman, WA**
M.S. Food Science **2009**
Dissertation: Inactivation of *Cronobacter (Enterobacter) Sakazakii* using Different Antimicrobial Agents and the Effect of Sanitizers on Biofilm Formation Properties

University of Costa Rica **San Pedro, Costa Rica**
Licentiate Chemistry **2006**
Dissertation: Development and Validation of a Quantitative Analytical Method for the Determination of Components in a Rubefacient Product by Gas Chromatography

University of Costa Rica **San Pedro, Costa Rica**
B.S. Chemistry **2004**

TEACHING EXPERIENCE

California Polytechnic State University **San Luis Obispo, CA**
Assistant Professor **Spring 2015-Present**
Courses:

Fermented Foods
Food Analysis
Food Chemistry
Brewing Science
Brewing Methods
Chemistry of Food Systems

- Lecture preparation, laboratory preparation, lecturing, grading, supervision of laboratory sessions.
- Responsibilities include academic advising of students, participation in university committees and activities.

Washington State University **Pullman, WA**
Instructor – Sensory Evaluation of Foods and Wine Laboratory **Spring 2013**

- Laboratory preparation, lecturing, grading, teaching assistant supervision.

Washington State University **Pullman, WA**
Instructor – Sensory Evaluation of Foods and Wine **Spring 2010**

- Lecture planning, lecturing, grading, review session coordination.

Washington State University **Pullman, WA**
Teaching Assistant **2007- 2009**

- Laboratory reagent preparation, report grading, experimental work supervision.
- Course assistant load includes the following: Wine Microbiology and Processing Laboratory, Food Analysis Laboratory, Food Chemistry Laboratory.

Technological Institute of Costa Rica (ITCR) **Cartago, Costa Rica**
Assistant Professor **2007**

- Responsibilities included academic advising of students, participation in university committees and activities.
- Lecture and laboratory preparation, grading, laboratory supervision.
- Teaching load included: Biochemistry and Organic Chemistry Laboratory, Principles of Organic Chemistry Laboratory.

Saint Paul College **Alajuela, Costa Rica**
Professor **2005**

- Taught 8th grade science.

University of Costa Rica **San Pedro, Costa Rica**
Teaching Assistant **2000 – 2004**

- Laboratory reagent preparation, report grading, experimental work supervision.
- Course load included: Analytical and General Chemistry Laboratory, Quantitative Analytical Chemistry Laboratory, Food Analysis Laboratory I and II, Quantitative Analytical Chemistry Laboratory for Microbiology.

PROFESSIONAL EXPERIENCE

Vapor y Enfriamiento S.A. (VAPENSA) **Alajuela, Costa Rica**
Quality Control and Research and Development Manager **2005 – 2007**

- Quality control analysis of raw materials and chemical water treatment products.
- Development of new products.
- Operation and supervision of the wastewater treatment system.

- Registration of any new products with the Ministry of Health and Ministry of Agriculture of Costa Rica.

PEER-REVIEWED PUBLICATIONS

Published

- Al-Holy, M., **Castro L.F.**, Al-Qadiri, H. (2009). Inactivation of *Cronobacter* spp. (*Enterobacter sakazakii*) in infant formula using lactic acid, copper sulfate and monolaurin. *Lett Appl Microbiol.* **50**, 246-251.
- **Castro, L.F.** and Ross, C.F. (2012). Removal of volatiles from beer by gas (N₂) stripping coupled with high-vacuum. *J Am Soc Brew Chem.* **70**, 137-141. ** American Society of Brewing Chemists (ASBC) Editor's Pick for Research and Trends on the ASBC monthly newsletter (the 'Buzz').
- **Castro, L.F.** and Ross, C.F. (2013). The Effect of Protein and Carbohydrate Levels on the Chemical and Sensory Properties of Beer. *J Am Soc Brew Chem.* **71**, 186-192. ** American Society of Brewing Chemists (ASBC) Editor's Pick for Research and Trends on the ASBC monthly newsletter (the 'Buzz').
- Ross, C.F., Secor, A., **Castro, L.F.**, Harrison, R. (2014). Odour Detection Threshold and Consumer Rejection of 1,1,6-trimethyl-1,2-dihydronaphthalene in 1-year-old Riesling Wines. *Aust J Grape Wine Res.* 2014. **20**, 335-339.
- **Castro, L.F.** and Ross, C.F. (2015). The use of Stir Bar Sorptive Extraction and Solid-Phase Microextraction for the Determination of Beer Flavor Compounds. *J Inst Brew.* **121**, 197-203.
- **Castro, L.F.** and Ross, C.F. (2015). Development and Optimization of a Solid Phase Dynamic Extraction (SPDE) Method for Volatile Compound Determination in Beer. *Food Anal Method.* **8**, 2115-2124.
- **Castro, L.F.** and Ross, C.F. Correlation Between Sensory Descriptive Analysis and Volatile Composition of Beer using Multivariate Analysis: The Effect of the Non-Volatile Matrix on the Sensory Perception and Volatile Fraction Behavior. 2018. *J Am Soc Brew Chem.* **76**, 86 – 95.

In Preparation

- **Castro L.F.** and Bryant, N. The Effect of High Gravity and Highly Hopped Fermentations on Yeast Viability.

SCIENTIFIC PRESENTATIONS

Licentiate Seminar Speaker

University of Costa Rica (2005)

Presentation: Kinesins: A new possibility for Antineoplastics.

Poster Presentation at the 2009 IFT Annual Meeting

Anaheim, CA

Poster: Inactivation of *Enterobacter Sakazakii* in Infant Formula Milk using Lactic Acid and Copper.

Poster Presentation at the 2012 American Society of Brewing Chemists Annual Conference

Portland, OR

Poster: Removal of Volatiles from Beer by Gas (N₂) Stripping Coupled with High-Vacuum.

Oral Presentation at the 2013 American Society of Brewing Chemists Annual Conference

Tucson, AZ

Presentation: The Effect of Protein and Carbohydrate Levels on the Chemical and Sensory Properties of Beer.

Poster Presentation at the 2014 American Society of Brewing Chemists Annual Conference

Chicago, IL

Presentation: The use of Stir Bar Sorptive Extraction and Solid-Phase Microextraction for the Determination of Beer Flavor Compounds.

Poster Presentation at the 2014 American Society of Brewing Chemists Annual Conference

Chicago, IL

Presentation: Development and Optimization of a Solid Phase Dynamic Extraction (SPDE) Method for Volatile Compound Determination in Beer.

Oral Presentation at the 2014 American Society of Brewing Chemists Annual Conference

Chicago, IL

Presentation: Correlation Between Sensory Analysis and Volatile Composition of Beer using Multivariate Analysis: Effect of the Beer Matrix on the Sensory Perception and Volatile Fraction Behavior.

Virtual Seminar Speaker

National University of Cajamarca, Peru (2015)

Presentation: Impact of Beer Matrix Components and their interactions on the Sensory Properties of Beer.

Oral Presentation at the 2016 Beverage Sensory Symposium

UC Davis, CA

Presentation: Determination of the volatile composition of beer by SPME, SPDE, SBSE and its relationship to the sensory profile.

Guest Speaker at the 2017 Short Course on Fundamentals of Quality Control in the Production of Craft Beer

Centro Nacional de Innovaciones Biotecnológicas (CENIBIOT), San Jose, Costa Rica
Presentation: Quality Control during the Production of Malt and Wort in the Craft Brewing Process.

Oral Presentation at the 2018 American Society of Brewing Chemists Annual Conference

San Diego, CA
Presentation: The effect of high gravity and highly hopped fermentations on yeast viability.
*Work presented by graduate student.

Guest Speaker at 7 Sisters Brewing Company

San Luis Obispo, CA
Presentation: Talks on Taps series: Becoming a Proper Beer Snob

Poster Presentation at the 2018 Summer Undergraduate Research Program Poster Session

San Luis Obispo, CA
Presentation: Impact of Wort Aeration Scenarios during High Gravity Brewing
*Work presented by undergraduate SURP students

Poster Presentation at the 2019 Summer Undergraduate Research Program Poster Session

San Luis Obispo, CA
Presentation: The Effect of Wort Oxygenation on Flavor Compound Development During High-Gravity Brewing
*Work presented by undergraduate SURP students

Poster Presentation at the 2019 Summer Undergraduate Research Program Poster Session

San Luis Obispo, CA
Presentation: The Impact of Dry-Hopping on the Sugar Profile of Beer
*Work presented by undergraduate SURP students

RESEARCH PROPOSALS AND GRANTS

2016-2017 SCIFTS Education and Research Grant. *Development of a Brewing Teaching/Research Program*. NOT FUNDED

2016-2017 Research, Scholarly and Creative Activities Grant. *The effect of alcohol levels on brewing yeast viability*. NOT FUNDED

2016-2017 Agricultural Research Initiative, New Investigator Grant. *The effects of alcohol and IBU levels on brewing yeast viability*. (\$40,000) FUNDED

2017-2020 Agricultural Research Initiative, Campus Competitive Grant. *Strawberries and Health in Post-Menopausal Women: Is the way to the heart through the gut?*. (\$108,209) FUNDED

2018 Specialty Crop Block Grant Program. *Increasing California Hard Cider Sales: Development of marketing tools to connect consumers with hard cider.* NOT FUNDED

2018 Research, Scholarly and Creative Activities Grant Program. *The Effect of Wort Oxygenation on Fermentation Performance and its Impact on Flavor Compound Formation during High-Gravity Brewing.* NOT FUNDED

2018 Brewers Association Research Grants. Influence of Specialty Malt Polyphenols on bitterness and Haze formation in Beer. NOT FUNDED

2019-2020 SCIFTS Education and Research Grant. Impact of Specialty Malt Polyphenol Profiles on Bitterness, Haze Formation, and Fermentation Performance in Beer. (\$24,031). FUNDED

2019-2020 Research, Scholarly and Creative Activities Grant. The Effect of Wort Oxygenation on Fermentation Performance and its Impact on Flavor Compound Formation during High Gravity Brewing. (\$17,647). FUNDED

2020-2023 United States Department of Agriculture – Capacity Building Grants for Non-Land Grant Colleges of Agriculture (NLGCA). The Determinants and Impacts of the Expansion of the Craft Beer Industry in California. SUBMITTED

GRADUATE MENTORING

Committee Chair, Ben Jabson (Expected 2020)

Committee Member, Caralyn Bibi Wong (Expected 2020)

Committee Member, Luke Lundberg (Expected 2019)

Committee Chair, Nichole Bryant (Expected 2018)

Committee Member, Suyapa Padilla-Antunez (2016)

PROFESSIONAL AFFILIATIONS

- Institute of Food Technologists (2009 – present)
- American Society of Brewing Chemists (2012 – present)
- Master Brewers Association of the Americas (2014 – present)