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Engineering & Scientific Consulting

Madeleine Bee, Ph.D.

Managing Scientist | Chemical Regulation and Food Safety
Washington DC
+1-202-772-4920 | mbee@exponent.com

Professional Profile

Dr. Madeleine Bee is an analytical chemist with a background in flavor and fragrance specializing in product stewardship for emerging contaminates, chemosensory perception of consumer products, and chemical regulation of pesticides and toxic substances.

Dr. Bee excels at method development for trace-level chemical analysis in complex matrices and interpreting the resulting technical data. She has supported clients in developing quality assurance testing programs to meet regulatory requirements and product stewardship goals, and rigorous chemosensory testing for label claim substantiation. Her interdisciplinary background is well suited to support clients with regulatory challenges that require a thorough understanding of analytical chemistry. Dr. Bee possesses expertise in federal and state regulatory matters, including FIFRA registrations, Proposition 65, TRI reporting, and VOC compliance.

Academic Credentials & Professional Honors

Ph.D., Food Science and Technology, Cornell University, 2020

B.S., Chemistry, American University, 2015

Household and Commercial Products Association: Emerging Professional Executive Scholarship, 2023

ACS AGFD Withycombe-Charalambous Graduate Student Competition, 2nd place, 2019

Women in Flavor and Fragrance Commerce: Flavor Scholarship Award, 2019

Society of Flavor Chemists: W. Jaggard Scholarship Award, 2018

President’s Council of Cornell Women Leadership Grant, 2017-2019

International Women’s Day: Cornell University Leadership Award, 2017

National Association of Flavors and Food-Ingredient Systems Scholarship, 2016

Prior Experience

GCMS Product Specialist, Shimadzu Scientific Instruments, 2020-2021

Research Fellow, E&J Gallo Winery, 2019

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Teaching Assistant, Cornell University, 2017

Professional Affiliations

Household and Commercial Products Association (HCPA)

Publications

Bee, Madeleine Y; Feng, H; Pan, BS; Dokoozlian, N; Sacks, GL. Polymeric sorbent sheets coupled to Direct Analysis in Real Time mass spectrometry for trace-level volatile analysis – a multi-vineyard evaluation study. Foods 2020; 9 (4): 409.

Rafson, JP; Bee, Madeleine Y; Sacks, GL. Spatially resolved headspace extractions of trace-level volatiles from planar surfaces for high-throughput quantitation and mass spectral imaging. Journal of Agricultural and Food Chemistry 2019; 67 (50): 13840-13847.

Bee, Madeleine Y; Jastrzembski, JA; Sacks, GL. Parallel headspace extraction onto etched sorbent sheets prior to ambient-ionization mass spectrometry for automated, trace-level volatile analyses. Analytical Chemistry 2018; 90 (22): 13806-13813.

Jastrzembski, JA; Bee, Madeleine Y; Sacks, GL. Trace-level volatile quantitation by Direct Analysis in Real Time mass spectrometry following headspace extraction: optimization and validation in grapes. Journal of Agricultural and Food Chemistry 2017; 65 (42): 9353-9359.

Presentations

Bee, Madeleine; Hearon, Sara. Challenges of PFAS Testing in Consumer Products. Oral presentation, EPA TSCA PFAS Workshop, Bethesda, MD, 2024.

Bee, Madeleine. Regulation of Chemicals of Concern and Microplastics. Oral presentation, HCPA/ISSA Workshop, Las Vegas, NV, 2023.

Parker, Sarah; Bee, Madeleine. Addressing Aerosol Product Compliance Challenges from Emerging HFC and PFAS Regulations. Oral presentation, HCPA Annual Meeting, Ft Lauderdale, FL, 2022.

Rackl, Sarahann; Bee, Madeleine. Addressing Consumer Product Compliance Challenges from Emerging PFAS Regulations. Oral presentation, HCPA/ISSA Workshop, Chicago, IL, 2022.

Bee DiGregorio, Madeleine; Owens, A; Sandy, A; Karbowski, R; Lock, N; Kuhn, E. Quantification of “smoke taint” compounds in grapes and wine by SPME-GCMS. Poster presentation, Pittcon Conference and Expo, Virtual, 2021.

Bee DiGregorio, Madeleine; Owens, A; Sandy, A; Karbowski, R; Lock, N; Kuhn, E. Optimization and evaluation of traditional SPME and SPME Arrow for qualitative analysis of meat aroma. Poster presentation, Pittcon Conference and Expo, Virtual, 2021.

Bee DiGregorio, Madeleine; Owens, A; Sandy, A; Karbowski, R; Lock, N; Marfil-Vega, R. Implementation of novel SPME Arrow for the trace-level analysis of taste and odor compounds in drinking water. Poster presentation, Pittcon Conference and Expo, Virtual, 2021.

Bee DiGregorio, Madeleine. Qualitative analysis of meat aroma with SPME-GCMS. Oral presentation, LCGC Chromatography Theory and Applications: A Virtual Symposium, 2020.Bee, Madeleine Y; Rafson, JP; Sacks, GL. Droplet-Based Liquid Extraction of Trace Volatiles Following Parallel Headspace Extraction onto Sorbent Sheets. Poster presentation, ASMS National Meeting, Atlanta, GA, 2019.

Bee, Madeleine Y; Rafson, JP; Jastrzembski, JA; Sacks, GL. Parallel extraction of grape volatiles onto sorbent sheets prior to automated analysis by Direct Analysis in Real Time mass spectrometry. Oral presentation, ACS National Meeting, Orlando, FL, 2019.

Bee, Madeleine Y. Drinking Periodically: Wine Chemistry 101. Oral presentation, ACS Congressional Chemistry Caucus, Washington, D.C., 2019.

Bee, Madeleine Y; Rafson, JP; Jastrzembski, JA; Sacks, GL. Speeding up SPME: Automating non-traditional solid phase microextraction geometries for high-throughput volatile analysis by direct analysis in real time mass spectrometry. Poster presentation, International Flavor & Fragrance Conference: Wuxi, China, 2018.