



**Exponent**<sup>®</sup>  
Engineering & Scientific Consulting

## Madeleine Bee, Ph.D.

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### Professional Profile

Dr. Madeleine Bee is an analytical chemist specializing in chemical regulation at both the state and federal level for compliance under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) with the Environmental Protection Agency (EPA). She prepares registration packages, coordinates product testing, writes waivers, evaluates labels and formulations, maintains state registrations, and manages establishment reporting for antimicrobial pesticide products and devices.

Dr. Bee has detailed knowledge of the current and fast-changing landscape of VOCs and PFAS regulations in the household and consumer products industry. Prior to joining Exponent, Dr. Bee worked as a gas chromatography-mass spectrometry (GC-MS) product specialist, where she gained extensive experience with this technique and its applications for flavor and fragrance and environmental research. Her dissertation research employed both GC-MS and ambient ionization mass spectrometry to quantify trace-levels of odorants in wine grapes for quality assessments during maturation and harvest seasons.

### Academic Credentials & Professional Honors

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

B.S., Chemistry, American University, 2015

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

Teaching Assistant, Cornell University, 2017

## Professional Affiliations

Institute of Food Technologists (IFT)

American Chemical Society (ACS)

## 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; Jastrzembki, 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.

Jastrzembki, 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

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; Jastrzembki, 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; Jastrzembki, 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.