

ETHAN BASS

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EDUCATION

Cornell University, Ithaca, NY.

Department of Ecology and Evolutionary Biology

PhD candidate

Advisor – Dr. André Kessler

The University of Chicago, Chicago, IL.

Bachelors of Science in Chemistry (honors), 2013

PUBLICATIONS

5. **Bass E** and Kessler A. “Comment on ‘Information arms race explains plant-herbivore chemical communication in ecological communities.’” *Peer Community Journal* 2 (2022). <https://doi.org/10.24072/pcjournal.102>.
4. Howard M*, **Bass E***, Chautá A, Mutyambai D, Kessler A. Integrating plant-plant communication and rhizosphere microbial dynamics: ecological and evolutionary implications and a call for experimental rigor. *The ISME Journal*, 2022, 16(1):5-9. <https://doi.org/10.1038/s41396-021-01063-0>. (* indicates equal contribution)
3. Whitehead SR, **Bass E**, Corrigan A, Kessler A, Katja P. Interaction diversity explains the maintenance of phytochemical diversity. *Ecology Letters*, 2021, 24(6): 1205-1214. <https://doi.org/10.1111/ele.13736>. (Recommended by Nicole van Dam on Faculty Opinions)
2. Mutyambai DM, **Bass E**, Luttermoser T, Poveda K, Midega CAO, Khan ZR, Kessler A. More Than “Push” and “Pull”? Plant-Soil Feedbacks of Maize Companion Cropping Increase Chemical Plant Defenses Against Herbivores. *Frontiers in Ecology and Evolution*, 2019, 7:217. <https://doi.org/10.3389/fevo.2019.00217>.
1. Jang S, Gornicki P, Marjanovic J, **Bass E**, Iurcotta TP, Rodriguez P, Austin J, Haselkorn R. Activity and structure of human acetyl-CoA carboxylase targeted by a specific inhibitor. *FEBS Letters*, 2018, 592(12):2048–2058. <https://doi.org/10.1002/1873-3468.13097>.

PREPRINTS & INVITED ARTICLES

Bass E. Getting to the root of divergent outcomes in the modulation of plant-soil feedbacks by benzoxazinoids. *New Phytologist* (2024). <https://doi.org/10.1111/nph.19545>. (Commentary on <https://doi.org/10.1111/nph.19401>)

Bass E*, Mutyambai D*, Midega C, Zeyaur KR, Kessler A. Associational effects of *Desmodium* intercropping on maize resistance and secondary metabolism. *Research Square*, 2023. <https://doi.org/10.21203/rs.3.rs-3641018/v1>. (Forthcoming in *Journal of Chemical Ecology*). (* indicates equal contribution)

GRANTS (Total Amount: \$20,667)

(2023) **Cornell Sigma Xi Research Grant** (\$1000), “Comparing root morphology and secondary chemistry as drivers of fungal collaboration in a rapid radiation of herbaceous plants (*Solidago spp*)”.

EEB Graduate Student Research Fund (\$1000), “Comparing root morphology and secondary chemistry as drivers of fungal collaboration in a rapid radiation of herbaceous plants”.

Cornell Atkinson Center's Sustainable Biodiversity Fund (\$4000), “Root secondary metabolites as mediators of plant-soil feedbacks”.

- (2022) **Andrew W. Mellon Student Research Grant** (\$1000), “Integrating the effects of herbivory and plant-soil feedbacks on plant coexistence”.
- Cornell Sigma Xi Research Grant** (\$1000), “Root secondary metabolites as mediators of plant-soil feedbacks”.
- (2021) **Cornell EEB Graduate Student Research Fund** (\$3000), “Contribution of Secondary Metabolism to Disease Resistance and Regulation of the Rhizosphere Microbiome in Lettuce (*Lactuca sativa*)”.
- Cornell Sigma Xi Grant-in-Aid of Research** (\$800), “Contribution of root polyacetylenes to plant soil feedbacks in lettuce (*Lactuca sativa*)”.
- (2020) **Cornell Atkinson Center's Sustainable Biodiversity Fund** (\$7867), “Integrating the effects of herbivory and plant-soil feedbacks on plant coexistence”.
- Andrew W. Mellon Research Grant** (\$1000), “Variation in the composition of polyacetylenes in lettuce (*Lactuca sativa*) and their contribution to resistance against a common fungal pathogen — *Botrytis cinerea*”.

TEACHING

Graduate Teaching Assistant (Cornell University, Ithaca, NY)	Dates
Chemical Ecology	(Spring 2021 & 2022, 2023)
Ecology and the Environment	(Spring 2022 & 2023, Fall 2018)
Ecology and the Environment (Writing in the Majors)	(Fall 2021 & 2022)
Evolutionary Biology and Diversity	(Fall 2020)
Comparative Physiology	(Spring 2020)
Evolutionary Biology and Diversity (Writing in the Majors)	(Spring 2019)
Field Ecology	(Fall 2019)
Laboratory in Genetics and Genomics	(Spring 2018 & Fall 2017)
GreenCorps Youth Instructor (WRD Environmental, Chicago, IL)	
Led a crew of 16-19 year old youths in project-based learning about ecology and the environment.	(June – Aug 2016)

PRESENTATIONS

- (2023) **Bass E**, Kessler A. “Root chemical defenses modulate plant-soil feedbacks in tall goldenrod (*S. altissima*)”. Cornell Department of Ecology and Evolutionary Biology December Symposium (talk).
- Bass E**, Kessler A. “Unraveling the polyacetylene paradox: Reciprocal impacts of multitrophic interactions and chemical defense evolution in tall goldenrod (*Solidago altissima*)”. Entomological Society of America Annual Meeting (invited talk).
- Bass E**, Kessler A. “Chemical defense variation modulates plant-soil feedback in tall goldenrod (*Solidago altissima*)”. Atkinson Center for a Sustainable Future Symposium (talk).
- Bass E**, Kessler A. “The regulation of plant-soil feedbacks by root chemical defenses in tall goldenrod”. Cornell plant interactions group (talk).

- Bass E**, Goodman A, Kessler A. “Root chemical defenses are structured by mutualism-defense tradeoffs in tall goldenrod (*Solidago altissima*)”. Plant Herbivore Gordon Research Conference (poster).
- (2022) **Bass E**, Kessler A. “Successional changes in soil microbiome influence the outcome of plant competition”. Ecological Society of America CSEE Meeting (talk).
- Bass E**, Anna G., Kessler A. “Root chemical defenses are structured by mutualism-defense tradeoffs: evidence from tall goldenrod”. Cornell Department of Ecology and Evolutionary Biology December Symposium (talk).
- (2021) **Bass E**, Kessler A. “Integrating the effects of plant-soil feedbacks and herbivory on plant coexistence”. Cornell Department of Ecology and Evolutionary Biology December Symposium (talk).

STUDENT POSTERS & PRESENTATIONS

(* indicates undergraduate presenter)

(** indicates high school presenter)

- (2023) Cohen I**, **Bass E**, Kessler A. “Investigating the Effects of Dark Septate Endophytes on Arbuscular Mycorrhizal Fungi”. Boyce Thompson Institute, George and Helen Kohut Symposium.
- Gezahagne, E*, **Bass E**, Kessler A. “Investigating the Effects of Benzoxazinoids on Arbuscular Mycorrhizal Fungi Colonization in Maize Crops”. Boyce Thompson Institute, George and Helen Kohut Symposium.
- (2022) Goodman A*, **Bass E**, Kessler A. “Root defense compounds of Tall Goldenrod, *Solidago altissima*, inhibit growth of fungal mutualist, *Rhizophagus irregularis*”. Cornell Undergraduate Research Board Fall Forum.
- (2021) Alvarez B*, **Bass E**, Kessler A. “Factors that Influence the Interaction Between Mycorrhizal Fungi and Goldenrods”. Microbial Friends & Foes REU Research Symposium.

SOFTWARE

AUTHOR AND MAINTAINER

Bass, E. (2023). chromatographR: Chromatographic Data Analysis Toolset (R package version 0.6.0). [\(https://ethanbass.github.io/chromatographR/\)](https://ethanbass.github.io/chromatographR/).

Bass, E. (2023). chromConverter: Chromatographic File Converter (R package version 0.5.0). [\(https://ethanbass.github.io/chromConverter/\)](https://ethanbass.github.io/chromConverter/).

Bass, E. (2023) ggтуkey: Compact Letter Displays for 'ggplot2' (R package version 0.4.0). [\(https://ethanbass.github.io/ggtukey/\)](https://ethanbass.github.io/ggtukey/).

Bass, E. (2023). mzinspectr: Read and Analyze Mass Spectrometry Alignment Files (R package version 0.4.0). <https://github.com/ethanbass/mzinspectr>.

Bass, E. (2022). ShinyChromViewer: R Shiny gadget for interactive viewing and exploration of chromatograms (R package version 0.1.0). <https://github.com/ethanbass/ShinyChromViewer>.

Bass, E. (2022). zerenebatchR: Utility for batch processing images in Zerene Stacker (R package version 0.2.1). <https://github.com/ethanbass/zerenebatchR>.

CONTRIBUTOR:

Entab: * -> TSV (<https://doi.org/10.5281/zenodo.7098719>)

RaMS: R Access to Mass-Spec Data (<https://github.com/wkumler/RaMS/>).

VPdtw: Variable Penalty Dynamic Time Warping (<https://cran.r-project.org/web/packages/VPdtw/>).

webchem: Chemical Information from the Web (<https://docs.ropensci.org/webchem/>).

metacoder: Tools for Parsing, Manipulating, and Graphing Taxonomic Abundance Data (https://grunwaldlab.github.io/metacoder_documentation/).

SERVICE & OUTREACH

Reviewer for New Phytologist (4x), *Arthropod-Plant Interactions* (2x), *Entomologia Experimentalis et Applicata* (1x).

Reviewer for Boyce Thompson Institute REU program (2023).

Richard B. Root Invited Speaker Committee and Departmental Seminar Committees (2018 – 2021)

- Coordinated annual Richard B. Root Invited Speaker seminar and EEB departmental seminar series.

Volunteer [Insectapalooza](#), Cornell Entomology Department, Ithaca, NY (2017 – 2023)

- Ran goldenrod ball gall activity for kids.

Volunteer [Cornell Diversity Preview Weekend](#) (now “Consider Cornell”) (2017-2018)

TRAINING AND PROFESSIONAL DEVELOPMENT

Writing in the Majors Teacher Training Seminar (2019)

John S. Knight Institute for Writing in the Disciplines, Cornell University

OTHER RESEARCH AND PROFESSIONAL EXPERIENCE

(April 2023) **Freelance Software Developer**, Veolia Water Technologies and Solutions (Remote)

- Developed Shiny app for converting Lumex Instruments “MDF” files to ANDI-CDF format.

(Sept. 2016 – Aug. 2017) **Laboratory Technician**, Cornell University (Ithaca, NY)

Advisors: Dr. Susan Whitehead, Dr. Katja Poveda

(Oct. 2013 – Sept. 2014) **Quality Control Chemist**, Cedar Concepts Corporation (Chicago, IL)

- Monitored and adjusted chemical reactions for large batches of soaps and detergents (up to 50,000 gallons).

(Oct. 2011 – Aug. 2013) **Research Assistant**, University of Chicago (Chicago, IL)

Advisors: Dr. Robert Haselkorn, Dr. Piotr Gornicki