

Dr. Csengele Barta

Professor of Biology (Plant Molecular Eco-Physiology and Geographic Information Systems, GIS)

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EDUCATION

Ph.D., Plant Biology, Plant Molecular Ecophysiology, Biochemistry and Cell Biology (*Summa Cum Laude*), 2004
University of Szeged, Hungary

M.Sc., Geographic Information Systems, GIS, expected May 2027, Northwest Missouri State University

Graduate Certificate, Geographic Information Systems, GIS, December 2024, Northwest Missouri State University

M.Sc., Plant Physiology, 2001, University of Szeged, Hungary & The Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary

International Training Course (ITC), Plant Physiology, 2001, The Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary

BSc degrees in (a) Biology; (b) Chemistry, and (c) Science (Biology and Chemistry) Education, (*Summa Cum Laude*) 2000, Babes-Bolyai University, Cluj Napoca, Romania

POSITIONS

Professor, Department of Biology, Missouri Western State University, Saint Joseph, MO, 2023–present

Associate Professor, Department of Biology, Missouri Western State University, Saint Joseph, MO, 2018 – 2023

Invited (Remote) Lecturer, Department of Biology and Ecology, Babes-Bolyai University, Cluj-Napoca, Romania, 2021 - present (topics in: plant physiology, plant ecophysiology, plant morphology, plant stress physiology and plant biotechnology)

Assistant Professor, Department of Biology, Missouri Western State University, Saint Joseph, MO, 2012- 2018

Visiting Scholar, Department of Atmospheric Sciences, Texas A&M University, College Station, TX, June 20th – July 14th, 2013

Research Associate, Department of Atmospheric Sciences, Texas A&M University, College Station, TX, 2010–2012

Research Plant Physiologist, USDA, Agricultural Research Service, Maricopa, AZ, 2007-2010

Post-Doctoral Research Fellow (EU), Institute of Agro-Environment and Forest Biology (Terrestrial Ecosystems Research Centre), Italian National Research Council, Rome, Italy, 2004-2007

Graduate Research Associate, Center of Excellence of the European Union, Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary, 2001-2004

International Research Fellow (UNESCO), Biological Research Center of the Hungarian Academy of Sciences, Szeged, Hungary, 2000-2001

Undergraduate Research Fellow, Biology and Geology Department, Babes-Bolyai University, Cluj- Napoca, Romania, 1996-2000

AREAS OF DISCIPLINARY EXPERTISE

- **Plant Science:** Plant Molecular Ecophysiology and Cell Biology; Plant Physiology; Plant Stress Physiology; Comparative Plant Morphology, Anatomy, and Development; Plant Diversity and Vegetation Surveys; Ethnobotany; Forest Biology; Horticulture; Lichenology and Environmental Pollution Monitoring.
- **Plant Ecology and Conservation:** Chemical Ecology; Plant–Environment Interactions; Climate Change Ecology; Invasive Species Ecology and Management; Plant Conservation; Vegetation and Ecosystem Restoration; Arid-Land Ecosystem Biology.
- **Crop and Agricultural Science:** Crop Physiology; Crop Stress Physiology; Crop Science; Plant Phenotyping; Integrated Pest Management; Crop and Environmental Modeling.
- **Plant Biochemistry and Molecular Biology:** Plant Biochemistry; Molecular Biology; Plant Biotechnology; Protein Biochemistry; Phytochemistry; Metabolomics; Bioinformatics and Systems Biology.
- **Environmental Science and Geospatial Applications:** Geographic Information Systems (GIS); Global Positioning Systems (GPS) and Geospatial Mapping; Environmental Process Modeling; Atmospheric Sciences.
- **Analytical and Interdisciplinary Applications:** Analytical Chemistry; Photobiophysics; Plant-Derived Bioactive Compounds; Natural Products, Inhibitors, and Toxins; Aromatic and Biogenic Volatile Organic Compounds.
- **Science Education and Undergraduate Research:** Course-Based Undergraduate Research Experiences (CUREs); Undergraduate Research Mentoring; Applied and Experiential Learning; Online and Technology-Enhanced Instruction; Science Outreach and Public Education; Scholarship of Teaching and Learning.
- **Professional and Technical Expertise:** Grant Writing and Research Development; Greenhouse Research and Applications; Chemical Quality Control.

TECHNICAL AND PROFESSIONAL COMPETENCIES

- **Plant Physiology, Ecophysiology, and Phenotyping:** Gas-exchange and photosynthetic measurements (LI-COR systems); chlorophyll fluorescence (PAM and fluorescence-induction systems); *in vivo* and *in vitro* pigment analysis and spectroscopy; plant water and nutrient relations; membrane stability and lipid peroxidation; carbohydrate, antioxidant, reactive oxygen/nitrogen species, and stress-metabolite assays; phenotypic profiling; controlled-environment and field-based stress physiology; canopy CO₂ and biogenic volatile organic compound (BVOC) flux measurements.
- **Plant Biochemistry, Metabolomics, and Analytical Techniques:** Spectrophotometry and fluorimetry; HPLC, GC, TLC, atomic absorption, and mass spectrometry; proton-transfer-reaction mass spectrometry and volatile headspace analysis; metabolite extraction, quantification, and bioassays; phytohormone, antioxidant, and oxidative-stress analyses; enzyme assays; phytochemical and allelopathic-compound analysis.
- **Protein Biochemistry and Proteomics:** Protein extraction, purification, fractionation, and characterization; SDS- and native PAGE; Western blotting; ELISA; ion-exchange and gel-filtration chromatography; ultracentrifugation; enzyme assay development; protein–protein interactions; affinity tagging; circular dichroism; protein stability, aggregation, and structural modeling; Rubisco and Rubisco activase purification and activity assays, including radioisotope-based methods.
- **Molecular Biology, Transcriptomics, and Biotechnology:** DNA and RNA extraction; PCR and quantitative PCR; primer design; electrophoresis; molecular cloning; construct and vector design; site-directed mutagenesis; *in vitro* transcription; Sanger sequencing and sequence analysis; plant/protoplast transformation; transgenic plant handling and screening; gene-expression and transcriptomic analyses; bioinformatics and sequence/database analysis.

- **Cell Biology and Microscopy:** Bright-field, fluorescence, and laser-scanning microscopy; histochemical and fluorescent staining; reactive oxygen species and programmed-cell-death assays; cellular and metabolite toxicity bioassays; sterile microbial and algal culture techniques.
- **Plant Growth, Field Research, and Agroecology:** Greenhouse, growth-chamber, field-plot, and large-scale screening experiments; soil and plant-tissue analyses; horticultural and crop-production methods; soil and aquaponic cultivation; vegetation surveys; insect-choice and plant-insect interaction bioassays; environmental monitoring and weather-station operation.
- **Geospatial, Remote Sensing, and Computational Methods:** GIS and GPS; ArcGIS Pro and ArcGIS Online; remote sensing and image analysis; ERDAS IMAGINE; environmental and ecophysiological modeling; meteorological and large-dataset analysis; statistical analysis and visualization; Python, HTML, and JavaScript.
- **Scientific Communication and Research Development:** Scientific writing and publishing; competitive grant development and administration; undergraduate research mentorship; research project design and management; scientific visualization and communication.
- **Education, Applied Learning, and Educational Technology:** Course-based undergraduate research experiences (CUREs); laboratory- and field-based applied learning; scholarship of teaching and learning; educational grant development; in-person, hybrid, and online course design and delivery; learning-management and instructional technologies; development of digital educational and outreach materials; workshop and scientific-event organization.

AWARDS AND HONORS

- 1) Nominated for the 2025 James V. Mehl Faculty Research Award of the MWSU Foundation by a colleague.
- 2) Missouri Invasive Plant Council's Invasive Plant Research Action Award, 2024
- 3) Plant Scholar of the American Society of Plant Biologists "Exceptional Talent to Solve 21 Century Agricultural Problems" Award, 2024
- 4) American Society of Plant Biologists (ASPB) Primarily Undergraduate Institutions Award, 2023
- 5) Shout Out Advisor Award Nomination, MWSU, 2023
- 6) American Society of Plant Biologists (ASPB) Primarily Undergraduate Institutions Award, 2022
- 7) Best Poster Award, to presenting mentee, Colleen Menne, Conference on Applied Learning in Higher Education, CALHE, 2022, St. Joseph, MO.
- 8) American Society of Plant Biologists (ASPB) Primarily Undergraduate Institutions Award, 2021
- 9) Ecological Society of America, Researchers at Undergraduate Institutions (ESA-RUI) Opportunity Award, 2021
- 10) LAS Faculty Development Award, MWSU, 2021
- 11) Outstanding Reviewer Award for 2019, Plants (awarded in 2020)
- 12) American Society of Plant Biologists (ASPB) Primarily Undergraduate Institutions Conference Award, 2020
- 13) Most Influential Professor Award, two awards, MWSU 2019 and 2020
- 14) Reviewer Board Member Award, Molecular Diversity Preservation International Publishers of the Multidisciplinary Digital Publishing Institute (MDPI), 2019
- 15) PUBLONS Peer Reviewer Award, Publons, 2019
- 16) LAS Faculty Development Award, MWSU, 2019
- 17) PUBLONS Peer Reviewer Award, Publons, 2018
- 18) LAS Faculty Development Award, MWSU, 2018
- 19) American Society of Plant Biologists – Primarily Undergraduate Institutions (ASPB-PUI), Plant Biology Travel Award, 2017
- 20) LAS Faculty Development Award, MWSU, 2017
- 21) LAS Faculty Development Award, MWSU, 2016
- 22) Tools in Plant Biology (ASPB and The Plant Cell) Award, 2015
- 23) American Society of Plant Biologists (ASPB), Plant Biology Travel Award, 2015

- 24) LAS Faculty Development Award, MWSU, 2015
- 25) American Society of Plant Biologists (ASPB), Plant Biology Travel Award, 2014
- 26) LAS Faculty Development Award, MWSU, 2014
- 27) American Society of Plant Biologists (ASPB), Women's Young Investigator Award, 2013
- 28) LAS Faculty Development Award, MWSU, 2013
- 29) American Society of Plant Biologists (ASPB), Plant Biology Travel Award, 2012
- 30) Graduate Teaching Academy Senior Award, Texas A&M University, 2012
- 31) Graduate Teaching Academy Award, Texas A&M University, 2011
- 32) ARS-USDA Award for Superior Performance, 2008
- 33) Marie-Curie (EC) Post-Doctoral Research Fellowship, 2004-2007
- 34) COST- Plant Proteomics in Europe Award, 2007
- 35) Gordon Research Conference, Ventura, CA, USA, Chair's Fund Award, 2006
- 36) BRC-HAS Ph.D. Fellowship, 2001-2004
- 37) International Advanced Antioxidant Biochemistry Course award, Wageningen, Netherlands, 2002
- 38) Bioinformatics Course Award, Polish Academy of Sciences, Warsaw, Poland, 2002
- 39) International (ITC) Research Fellowship (UNESCO&EC), 2000-2001

FUNDING

- 1) **NSF-MRI (Major Research Instrumentation): Acquisition of a multi-functional LICOR-6800 Gas Exchange System for biology and chemistry research and applied learning.**, National Science Foundation (NSF, Division of Biological Infrastructure, DBI), (\$112,000) – principal investigator, **Award # 2510940, 2026 – 2029**
- 2) **Rooting Plant Science: A Scalable Undergraduate Plant-Based CURE Extending Molecular Plant Science Learning from College to High School.**, American Society of Plant Biologists (ASPB), Plant BLOOME Education Award, 2026 - 2027 (~\$ 8,500)
- 3) **Leveraging velvet bean (*Mucuna pruriens*) endosperm metabolites to enhance salinity stress resistance in tomato.** American Society of Plant Biologists (ASPB), 2026 (~\$9,000) – principal investigator/mentor – **Summer Undergraduate Research Funding (SURF)** to student Phoenix Schlorff, MWSU
- 4) **Translating discovery into applied learning: development of a research-based CURE module for Principles of Cell Biology (BIO106) at Missouri Western State University (MWSU),** Faculty Summer Research Grant, MWSU Foundation, 2026, (\$7,500). - principal investigator
- 5) **Primarily Undergraduate Institution (PUI) Faculty Professional Development Workshop - Harnessing Artificial Intelligence (AI) to advance research productivity and integrate research-based teaching at PUIs,** American Society of Plant Biologists, ASPB, 2025 (\$13,500). - principal investigator
- 6) **Harnessing remote sensing and machine learning for urban pond water quality and pond ecosystem health assessment: a novel frontier in aquatic monitoring with ecological, conservation, and community benefits.**, Faculty Summer Research Grant, MWSU Foundation, 2025, (\$7,500). - principal investigator
- 7) **Donation - Gift in Kind - Drones Inbound, Inc. donation to Barta C.'s research project: Harnessing remote sensing and machine learning for urban pond water quality and pond ecosystem health assessment.**, Gift, Drones Inbound Inc. - Thomas Dowell: \$10,600 (May 30 - September 5, 2025) - principal investigator
- 8) **Unlocking nature's bounty: exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress to support the future and new tools of an environment-smart, sustainable agriculture.** Faculty Summer Research Grant, MWSU Foundation, 2024, (\$7,500).
- 9) **The secret language of plants: unveiling the intricate mechanisms of chemical communication between species,** American Society of Plant Biologists (ASPB), 2023 (~\$8,000) – principal investigator/mentor – **Summer Undergraduate Research funding (SURF)** to student Sonja Weber, MWSU
- 10) **Is the capacity to emit isoprene a valuable tool in plants' arsenal for fending aggressive allelopathic invaders during chemical warfare for resources and survival?** American Society of Plant Biologists (ASPB), 2023 (~\$ 8,000) – principal investigator/mentor – **Summer Undergraduate Research funding (SURF)** to student Rene Frye, MWSU

- 11) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2023 (\$2,500)**
– principal investigator
- 12) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2022 (\$2,500)**
– principal investigator
- 13) **Offense and defense strategies in plants' chemical warfare for resources and survival: Can native "heroes" rescue other native plant species, sensitive to allelopathic inhibition, triggered by highly competitive invasive species?**, American Society of Plant Biologists (ASPB), 2021 (~\$6,000) – principal investigator/mentor – **Summer Undergraduate Research funding (SURF)** to student Alyka Zahnd, MWSU
- 14) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2021 (\$3,500)**
– principal investigator
- 15) **Discover Science, Summer Day Camp, 2019–2020, Western Foundation (\$5,742)** – principal investigator
- 16) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2020 (\$2,800)**
– principal investigator
- 17) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2019 (\$3,500)**
– principal investigator
- 18) **The role of isoprene in plant development**, American Society of Plant Biologists (ASPB), 2018 (~\$6,000) – principal investigator/mentor – **Summer Undergraduate Research funding (SURF)** to student Rachael Prawitz, MWSU
- 19) **Small Instrumentation Grant, funded by the Western Foundation, 2018 (\$4,000)** – principal investigator
- 20) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2018 (\$3,500)**
– principal investigator
- 21) **Small Instrumentation Grant, funded by the Western Foundation, 2017 (\$2,000)** – principal investigator
- 22) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2017 (\$3,500)**
– principal investigator
- 23) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2016 (\$3,500)**
– principal investigator
- 24) **Small Instrumentation Grant, funded by the Western Foundation, 2015 (\$2,500)** – principal investigator
- 25) **Expansion of the Leo Galloway Herbarium, funded by the Western Foundation, 2015 (\$2,500)** – co-principal investigator
- 26) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2015 (\$3,500)**
– principal investigator
- 27) **Discover Science – Summer Day Camp, funded by Boehringer Ingelheim Vetmedica Inc., 2015 (\$6,820)** – principal investigator
- 28) **Discover Science – Summer Day Camp, funded by Boehringer Ingelheim Vetmedica Inc., 2014 (\$12,250)**
– principal investigator
- 29) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2014 (\$3,500)**
– principal investigator
- 30) **Program of Research, Teaching and Applied Learning (PORTAL) Research Award, MWSU, 2013 (\$3,500)**
– principal investigator
- 31) **Bilateral Cooperation Grant, CNR-MTA, Italian and Hungarian Ministry of Sciences and Education, 2007-2009 (€ 15,000)** – principal investigator at CNR
- 32) **Bilateral Cooperation Grant CNR-BAS, Italian and Bulgarian Ministry of Sciences and Education, 2007-2009 (€ 12,000)** – principal investigator at CNR
- 33) **ACCENT-BIAFLUX Exchange of Staff Grant, collaborator: Popov Institute of Plant Physiology of the Bulgarian Academy of Sciences, 2006 (€ 5,000)** – principal investigator
- 34) **European Science Foundation (ESF), VOCBAS Exchange Grant, collaborators: Research Center Karlsruhe, IMK-IFU, Garmisch Partenkirchen, Germany; EUS&BIOP Institutes of the GSF National Research Center for Environment and Health (Helmholtz Association), Munich, Germany, 2006 (€ 6,000)** – principal investigator

- 35) **European Science Foundation (ESF), VOCBAS Short Visit Grant**, collaborator: Research Center Karlsruhe, IMK-IFU, Garmisch-Partenkirchen, Germany, 2005 (€ 3,000) - principal investigator

Other, non-funded, but positively rated proposals:

- i) **RUI: Evaluating Short Exposures to Course-Based Undergraduate Research Experiences Across the Core Biology Curriculum**, National Science Foundation (NSF) (\$350,000) - co-principal investigator, 2024
- ii) **Endemism and biotic interactions in the Interior Highlands, a region of exceptional biogeography**, National Science Foundation (NSF), (\$3,700,000) - principal investigator for MWSU – multi-state collaborative project
- iii) **Griffon Pathway to STEM (GPS): Enhancing Mentoring and Engagement to Excel in STEM** - National Science Foundation (NSF), DUE 1742068, 2017 (\$999,938) - co-principal investigator
- iv) **Collaborative Research: Digitization TCN, National Science Foundation (NSF)** – proposal 1413839, 2014 (\$76,000) - principal investigator at MWSU

TEACHING AND MENTORING

Courses – delivered in both in-class and online formats

Department of Biology, Missouri Western State University (2012–present):

- **Plant Morphology, BIO 407 and 307** (307, starting the Fall 2019) – lecture and laboratory (upper level, majors’ course – re-developed; offered every Fall)
- **Plant Physiology, BIO 340 and 440** (440, starting the Spring of 2020)– lecture and laboratory (upper level, majors’ course – re-developed; offered every Spring, lecture and one laboratory section/offering)
- **Honors Colloquium, HON 395** – special topics seminar course (upper level, honors students – developed; offered in the Fall of 2014; the Spring of 2018 and Spring 2022) – topics included “plant volatile and chemical communication”; “plant secondary metabolites and drug design”; “life at the extremes”.
- **Principles of Cell Biology, BIO 106** – lecture and laboratory (introductory, majors – offered Spring and Fall semesters each year, with lecture and two to four laboratory sections, pending enrollment/offering)
- **Introduction to Geographic Information Science, GIS, GEO426** – hybrid course, first offered Spring 2025.
- **Early College Academy: Principles of Biology, BIO 101, online lecture and laboratory**, developed starting 2025.
- **Principles of Biology, BIO 101**– lecture and laboratory (introductory, non-majors, offered a total of 4 lectures and ten laboratory sections since 2012 in various semesters)
- **University 101** – lecture/seminar (introductory, majors, offered every Fall)
- **Independent Research, BIO 450** – research practicum (majors, research; offered every Spring, Fall, and Summer)
- **Independent Research in Geospatial Technology, GEO 450** – research practicum (majors & non-majors research; offered every Spring, Fall, and Summer)
- **Biology Teaching Practicum, BIO 420** – teaching practicum (majors, teaching; offered various Spring or Fall semesters)
- **Field Natural History, BIO 220** – field course (Co-Taught in Spring 2020 the offering led by Dr. Karen Koy (“Natural History of the Desert Southwest”). **Planned as lead faculty for the 2028 offering “Natural History of Hawaii’.”**

Department of Biology and Geology, Babes-Bolyai University, Cluj-Napoca, Romania (2021–present):

- **Plant Biotechnology** (*upper division*)
- **Plant Morphology and Anatomy** (*introductory*)

- **Plant Physiology** (*upper division*)
- **Plant Stress Physiology** (*upper division*)
- **Plant Ecophysiology** (*upper division*)

Other Institutions (2000–2012):

Department of Atmospheric Sciences Texas A&M University, 2011 (guest lectures, ATMO 202) – majors, developed

University of Tuscia, Viterbo, Italy, 2007, “Plant emitted volatiles,” (full course in English and Italian) – upper-level majors and graduates, developed

Institute of Agro-Environment and Forest Biology, Italy, lectures in Chemical Ecology, Plant Biology and Biochemistry, 2004–2007 – graduate lectures, developed

Directed RESEARCH TEAM(s) and PROJECTS

Department of Biology, Missouri Western State University (2012–present):

2026

Phoenix Schlorff – Project: The mechanism of enhanced salt-stress resistance in tomato in response to velvet bean soil supplements.

Alessa Tamez – Project: Phenology-dependence of the benefits of velvet bean soil additions on the health and growth responses of tomato plants.

Jack Barta – Project: The growth and developmental benefits of velvet bean soil additions to tomato plants under poor and optimum nutrition regimes.

Megan Thompson – Project: The mechanism of enhanced salt-stress resistance in tomato in response to velvet bean soil supplements.

Phoenix Schlorff and Megan Thompson - Project: Translating discovery into applied learning: development of a research-based CURE module for Principles of Cell Biology (BIO106) at Missouri Western State University (MWSU).

Brittney Haynes-Green - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress (continued).

Brittney Haynes-Green - Project: Do velvet bean soil supplements provide drought resistance to crops?

Joey Ramey – Project: Urban pond water quality and pond ecosystem health assessment using remote sensing (continued).

Tyler Hollingsworth - Project: The priming effect of hydrogen peroxide for salt stress resistance in velvet bean allelopath-exposed tomato plants (continued).

2025

Brittney Haynes-Green - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress (continued).

Daya Keithley (Oldham) – Project: Urban pond ecology and the detection of climate-induced changes in pond health using remote sensing and machine learning.

Joey Ramey – Project: Urban pond water quality and pond ecosystem health assessment using remote sensing.

Teri Larison - Project: Urban pond water quality and pond ecosystem health assessment using remote sensing.

Tyson Cook - Project: Gene expression changes in salt-stressed and velvet-bean allelo-primed tomatoes.

Sam Gazi - Project: Gene expression changes in salt-stressed and velvet-bean allelo-primed tomatoes.

Amber Spradley - Project: Gene expression changes in salt-stressed and velvet-bean allelo-primed tomatoes.

Jackson Cartwright - Project: The priming effect of hydrogen peroxide for salt stress resistance in velvet bean allelopath-exposed tomato plants.

Tyler Hollingsworth - Project: The priming effect of hydrogen peroxide for salt stress resistance in velvet bean allelopath-exposed tomato plants.

Aaron King - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress (continued).

Aaron King - Project: Urban pond water quality and pond ecosystem health assessment using remote sensing.

Hanna Moore - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress (continued).

2024

Aaron King - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress. (*Summer Research Grant, 2024*).

Aaron King - Project: Bacteria isolation from hypersaline soils for the identification of potential plant-growth promoting (PGPP) bacteria species. (*Summer Research Grant, 2024*).

Angel Justus - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress. (*Summer Research Grant, 2024*).

Hanna Moore - Project: Exploring the potential of velvet bean (*Mucuna pruriens*) seed metabolome in enhancing crop resistance to salinity stress (*Summer Research Grant, 2024*).

Renee Frye - Project: Identifying velvet bean seed chemicals and root exudates with potential inhibitory effects.

Sonja Weber - Project: The impact of velvet bean seeds on red russian kale growth and development.

2023

Angel Justus - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

Sonja Weber - Project: The impact of velvet bean seeds on red russian kale growth and development (*Gold Friday Research*).

Nora Burroughs - Project: The impact of velvet bean seed chemicals on red russian kale physiology (*Gold Friday Research*).

Renee Frye - Project: The identification of velvet bean seed chemicals and root exudates with potential inhibitory effects (*Gold Friday Research*).

Amadeu Pavini - Project: The impact of velvet bean seeds on red russian kale growth and development (*Gold Friday Research*).

Chenoah Reeder - Project: The impact of velvet bean seeds on red russian kale growth and development (*Gold Friday Research*).

Jeremy Schneider - Project: The impact of soil microbiome on allelopathic interactions between competing plant species? (*Gold Friday Research*).

Jeremy Schneider - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

Teri Larison - Project: The impact of differential prairie management practices on planted native species emergence and invasive infestation (*Summer PORTAL and Gold Friday Research*).

Teri Larison - Project: Soil enrichment with degrading velvet bean (*Mucuna pruriens*) seeds enhances plant growth, development and delays senescence: could velvet bean chemicals become key for future agricultural practices? (*Summer PORTAL and Gold Friday Research*).

Katy Stafford - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

2022

Jeremy Schneider - Project: The impact of soil microbiome on allelopathic interactions between competing plant species? (*Gold Friday Research*).

Jeremy Schneider - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

Jacob Kuy - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

Jacob Kuy - Project: Do velvet bean allelopathic agents affect radish growth and development? (*Gold Friday Research*).

Teri Larison - Project: The impact of differential prairie management practices on planted native species emergence and invasive infestation (*Summer PORTAL and Gold Friday Research*).

Teri Larison - Project: Soil enrichment with degrading velvet bean (*Mucuna pruriens*) seeds enhances plant growth, development and delays senescence: could velvet bean chemicals become key for future agricultural practices? (*Summer PORTAL and Gold Friday Research*).

Katy Stafford - Project: Plant succession survey on the John Rushin Teaching and Research Prairie. (*Gold Friday Research*).

Kate Kyser - Project: Offense and defense strategies in plants' chemical warfare for resources and survival: chemical competition for resources between native tallgrass prairie species and invasive species (*Gold Friday Research*).

Kate Kyser - Project: Does the capacity to emit isoprene provide a competitive advantage to plants subject to allelopathic inhibitors? (*Gold Friday PORTAL*).

Colleen Menne - Project: Plant success survey on the John Rushin Teaching and Research Prairie (*Gold Friday PORTAL*)

Marissa Garza - Project: Molecular and functional differences between the genes controlling the emission of isoprene in Missouri oaks. A comparative study. (*Gold Friday and Summer PORTAL*)

Aubree Haddock - Project: Molecular and functional differences between the genes controlling the emission of isoprene in Missouri oaks. A comparative study. (*Gold Friday PORTAL*)

Alyka Zahnd - Project: Offense and defense strategies in plants' chemical warfare for resources and survival: Can native "heroes" rescue other native plant species, sensitive to allelopathic inhibition, triggered by highly competitive invasive species? (*Gold Friday and Summer PORTAL*)

Alyka Zahnd - Project: The impact of topology and resource availability on native prairie species distribution on the John Rushin Teaching and Research Prairie at Missouri Western State University. (*Gold Friday PORTAL*)

Jessica Poush - Project: The impact of topology and resource availability on native prairie species distribution on the John Rushin Teaching and Research Prairie at Missouri Western State University. (*Gold Friday PORTAL*)

2021

Kate Kyser - Project: Does the capacity to emit isoprene provide a competitive advantage to plants subject to allelopathic inhibitors? (*Gold Friday PORTAL*).

Colleen Menne - Project: The impact of topology and resource availability on native prairie species distribution on the John Rushin Teaching and Research Prairie at Missouri Western State University. (*Gold Friday PORTAL*)

Marissa Garza - Project: Molecular and functional differences between the genes controlling the emission of isoprene in Missouri oaks. A comparative study. (*Gold Friday PORTAL*)

Aubree Haddock - Project: Molecular and functional differences between the genes controlling the emission of isoprene in Missouri oaks. A comparative study. (*Gold Friday PORTAL*)

Alyka Zahnd - Project: The impact of topology and resource availability on native prairie species distribution on the John Rushin Teaching and Research Prairie at Missouri Western State University. (*Gold Friday PORTAL*)

Alyka Zahnd – Project: Offense and defense strategies in plants’ chemical warfare for resources and survival: Can native “heroes” rescue other native plant species, sensitive to allelopathic inhibition, triggered by highly competitive invasive species? (*ASPB SURF Project, Summer*)

Jessica Poush – Project: The impact of topology and resource availability on native prairie species distribution on the John Rushin Teaching and Research Prairie at Missouri Western State University. (*Summer PORTAL*)

Amie Haddock – Project: The molecular diversity of isoprene synthase genes and enzymes. (*Gold Friday PORTAL*)

Shannon Buehre – Project: The molecular diversity of isoprene synthase genes and enzymes. (*Gold Friday PORTAL*)

Mehreen Tai – Project: The molecular diversity of isoprene synthase genes and enzymes. (*Gold Friday PORTAL*)

Lauren Tinoco – Project: Planted tree survival and factors influencing survival rates on the John Rushin Teaching and Research Prairie at Missouri Western State University (*Gold Friday PORTAL*).

2020

Devon Lindstrom Project: The molecular mechanism at the basis of allelopathic inhibition of seed germination by honeysuckle (*Lonicera maackii*) leaf extract in *Brassica rapa*. (*Gold Friday and Summer PORTAL*)

Devon Lindstrom Project: The evolution of isoprene emission in plants. (*Gold Friday and Summer PORTAL*)

Aubree Haddock Project: Molecular and functional differences between the genes controlling the emission of isoprene in Missouri oaks. A comparative study. (*Gold Friday PORTAL*)

Amie Haddock – Project: The molecular diversity of isoprene synthase genes and enzymes. (*Gold Friday PORTAL*)

Alyka Zhand – Project: Biological weed control: taking advantage of plant secondary chemistry in plant conservation. (*Gold Friday PORTAL*)

Tai Mehreen – Project: Seasonal expression of the isoprene synthase gene in post oaks (*Gold Friday PORTAL*)

Tai Mehreen – Project: Isoprene synthase structural modelling. (*Gold Friday PORTAL*)

Caroline Langley – Project: Seasonal expression of the isoprene synthase gene in pin oaks (*Gold Friday PORTAL*)

Kait Atkins – Project: The impact of honeysuckle allelochemicals on the soil microbiome. (*Gold Friday PORTAL*)

Sarah Powell – Project: The evolutionary benefits of isoprene production in oaks. (*Gold Friday PORTAL*)

Harrison Meers – Project: Exploring the biotechnological potential of using isoprene synthase to produce biofuels. (*Summer PORTAL*)

Colleen Menne – Project: Biological pest control: screening of volatiles emitted by native Missouri species. (*Gold Friday PORTAL*)

Rose Privett – Project: Isoprene emission in kudzu: invasive benefit or evolutionary relic? (*Gold Friday PORTAL*)

Nicholas Stratton – Project: Biological control of invasive species in plant conservation. (*Gold Friday PORTAL*)

Alexis Hersh – Project: Chemical warfare in the plant world: the characterization of honeysuckle (*Lonicera maackii*) leaf allelochemicals. (*Gold Friday PORTAL*)

Cody Kirschner – Project: Isoprene synthase structural modeling. (*Gold Friday PORTAL*)

Jessica Poush – Project: Biological pest control: screening of volatiles emitted by native Missouri species. (*Gold Friday PORTAL*)

Jessica Phelan – Project: Oak isoprene synthase protein models. (*Gold Friday PORTAL*)

Caylee VanGeison – Project: Screening Missouri invasive species for the production of allelopathic metabolites. (*Gold Friday PORTAL*)

2019

Megan Morris – Project: Oak isoprene synthase protein models.

Zachary Schank – Project: The isolation and characterization of isoprene synthase genes from Missouri oaks.

Cameron Hall – Project: Variations in the gene encoding for isoprene synthase in Missouri oaks (*Quercus* spp.).

Brian Jenkins - Project: Elevated endo- and exogenous phytohormone levels alleviate the negative allelopathic effects of honeysuckle leaf extracts.

Nick Straton - Project: The isolation and characterization of isoprene synthase genes from Missouri oaks.

Cody Kirschner - Project: Isoprene synthase structural modelling.

Chayata Faye Thammarat - Project: The mechanism of active root avoidance responses in response to allelopathic inhibitors in *Brassica rapa* seedlings.

Rachael Prawitz - Project: Characterization of the seasonal pin oak (*Quercus palustris*) isoprene synthase (*Isps*) expression AND Project: The role of isoprene in plant development.

Brendan Ryan - Project: The impact of honeysuckle (*Lonicera maackii*) leaf allelochemicals on native Missouri species.

Devon Lindstrom - Project: The molecular mechanism at the basis of allelopathic inhibition of seed germination by honeysuckle (*Lonicera maackii*) leaf extract in *Brassica rapa*.

Makenzie Helsel - Project: Plants for the future: taking advantage of plant volatiles in biological pest control.

2018

Jeremy Reynolds – Project: Juglone and honeysuckle leaf extracts downregulate gibberellic acid production in *Brassica rapa* seeds, inhibiting seed germination.

Brian Jenkins - Project: Elevated endo- and exogenous phytohormone levels alleviate the negative allelopathic effects of honeysuckle leaf extracts.

Devon Lindstrom - Project: Identification of secondary metabolites involved in the allelopathic action of the invasive honeysuckle (*Lonicera maackii*).

Chayata Faye Thammarat - Project: The mechanism of active root avoidance responses in response to allelopathic inhibitors in *Brassica rapa* seedlings.

Rachael Prawitz - Project: Characterization of the seasonal pin oak (*Quercus palustris*) isoprene synthase (*Isps*) expression.

Rachael Prawitz – Project: The role of isoprene in plant development. (ASPB-SURF Project, Summer)

Makenzie Helsel - Project: Isoprene synthases in oaks.

William Kyle Constable - Project: The evolution of oak isoprene synthases.

Neiley Karns - Project: The isolation and characterization of the isoprene synthase protein from pin oak.

Jesica Phelan - Project: The impact of the 2018 severe drought on the oxidant-antioxidant balance, photosynthesis, and isoprene emission of pin oaks in NW Missouri.

Kody Piper - Project: Does the capacity to emit isoprene provide competitive advantage to invasive species?

Mary Moore - Project: Characterization of the post oak (*Quercus stellata*) isoprene synthase (*Isps*) gene.

Kerry Moore - Project: The allelopathic effects of honeysuckle (*Lonicera maackii*) leaf extracts.

2017

Alyssa Jones - Project: Characterization of the pin oak (*Quercus palustris*) isoprene synthase (*Isps*) gene.

Reid Brown - Project: DNA isolation from pin oak buds.

Danielle Edeman - Project: Isolating DNA from mature leaves of species with high secondary metabolite contents.

Rachael Prawitz - Project: Housekeeping genes for quantitative PCR in pin oak (*Quercus palustris*) – identifying partial sequences of the 18 S rRNA, ndhF, and ATP β encoding genes.

Mackenzie Helsel - Project: Total RNA isolation from pin oak (*Quercus palustris*).

Christina Gray - Project: Isoprene synthase (*Isps*) evolution in angiosperms.

Audrey Keim - Project: Isoprene synthase gene expression in pin oak (*Quercus palustris*).

Amie Haddock – Project: The impact of in-situ dark adaptation on the efficiency of DNA extraction from mature pin oak (*Quercus palustris*) leaves.

2016

Alyssa Jones - Project: Characterization of the pin oak (*Quercus palustris*) isoprene synthase (*IspS*) gene.

Kalif Leslie - Project: Pin oak (*Quercus palustris*) isoprene synthase properties.

Christina Gray - Project: The relationship between isoprene emission and senescence in pin oaks (*Quercus palustris*).

Edward Miles - Project: The molecular ecophysiology of oak marcescence. Oak isoprene synthases.

Amie Haddock - Project: Do light intensity change induced alterations in leaf isoprene emission affect the timing of senescence in velvet bean (*Mucuna pruriens*)?

Jeremy Brown - Project: Do temperature variation induced alterations in leaf isoprene emission affect the timing of senescence in velvet bean (*Mucuna pruriens*)? Isoprene synthase characterization.

Steven Bilby - Project: Challenges and solutions to quality genomic DNA isolation from mature and senescing pin oak (*Quercus palustris*) leaves.

Marissa Klingseis - Project: Do drought stress-induced alterations in leaf isoprene emission affect the timing of senescence in velvet bean (*Mucuna pruriens*)?

Chandler Gossett - Project: The impact of light quality on velvet bean (*Mucuna pruriens*) isoprene emission. *Mucuna sp.* isoprene synthase.

Alexander Duryee - Project: Taking advantage of plant metabolism in isolating high quality genomic DNA from mature pin oak (*Quercus palustris*) leaves.

Matthew Steinlage - Project: The metabolic triggers of leaf marcescence in oaks.

Erin Scott - Project: Oxidant-antioxidant balance in senescing oak leaves.

Mary-Kate Wiley - Project: Variations in the extent of lipid peroxidation during senescence in pin oak (*Quercus palustris*) leaves.

Tyler Hughes - Project: The impact of light quality on isoprene emission oak species.

Hailey Drew Mantlo - Project: Morphological differences between velvet bean plants grown under light and temperature gradient conditions.

2015

Sandra Pitcher - Project: GIS: a biological tool in the investigation of ecological consequences and the physiological mechanism at the basis of marcescence.

Edward Miles - Project: The molecular eco-physiology of oak marcescence.

Christina Gray - Project: The relationship between isoprene emission and senescence in pin oaks (*Quercus palustris*).

Bethany Bolander - Project: Seasonal variations in leaf pigment composition in pin oaks (*Quercus palustris*) in Missouri.

Lauren Alkier - Project: Designing a flow-through chamber system for plant gas exchange and volatile collection.

Jenice Bartlett - Project: Differences in the timing of the development of the abscission layer in marcescent and non-marcescent pin oak (*Quercus palustris*) leaves.

Erin Scott - Project: Oxidant-antioxidant balance in senescing oak leaves.

Heather Seever - Project: Pigment degradation dynamics in senescing pin oak leaves (*Quercus palustris*).

Carly Compton - Project: Does increasing the blue spectral component of incident irradiation alter isoprene emission rates in velvet bean (*Mucuna pruriens*)?

Nicholas Williams - Project: Detecting light-stress induced reactive oxygen species production *in vivo* in velvet bean (*Mucuna pruriens*) leaves using a novel fluorescent sensor.

2014

Sandra Pitcher - Project: The molecular eco-physiology of oak marcescence.

Derek Hullett - Project: Designing a low-cost dynamic leaf volatile collection chamber.

Jasmine Stalker - Project: Does the capacity to emit isoprene provide a competitive advantage to kudzu (*Pueraria lobata*) in Missouri?

Jessie Green - Project: The timing of senescence in marcescent and non-marcescent oak trees.

Charmaine Marie Banez - Project: Do enhanced isoprene emission rates prevent reactive oxygen formation in marcescent trees?

Jessica Foster - Project: Does modulating isoprene emission in velvet bean (*Mucuna pruriens*) affect the timing of leaf senescence?

Heather Seever - Project: The relationship between isoprene flux and abscisic acid synthesis in velvet bean (*Mucuna pruriens*) and kudzu (*Pueraria lobata*).

2013

Derek Payne - Project: Identification of marcescent tree species in NW Missouri during the winter of 2012–2013. A Global Positioning mapping study.

Tyler O. Hughes - Project: Climate change feedback on plant isoprene emissions.

Jesse Campbell - Project: Does isoprene play a role in delaying senescence in oaks under high temperature conditions?

Jake Graham - Project: Oak species in the United States: a comparative biogeography study.

Phillip Mueller - Project: Stress resistance mechanisms in marcescent tree species.

Sandra Pitcher - Project: The molecular eco-physiology of oak marcescence.

Other institutions – co-advised research (2004–2012):

Jonathan Gramann (Ph.D.), Texas A&M University, 2010–2012

Stephanie L. White (undergraduate, sophomore), Texas A&M University, 2010

Alice Garani (undergraduate, junior), University of Bologna, 2009

Alberto Canarini (undergraduate, junior), University of Bologna, 2009

Gwen G. Coyle (research assistant), ARS-USDA, 2007–2010

Roberta Fodale (MSc), University of Palermo, Italy, 2006–2007

Clelia Oliva (MSc), Montpellier, France, 2006–2007

Alessio Fortunati (Ph.D.), University of Tuscia, Viterbo, Italy, 2004–2007

Federico Brilli (Ph.D.), University of Tuscia, Viterbo, Italy, 2004–2007

Silvano Fares (Ph.D.), University of Tuscia, Viterbo, Italy, 2004–2007

Domenico Serafini (PhD), University of Tuscia, Viterbo, Italy, 2004–2007

TEACHING ASSISTANT ADVISING

Department of Biology, Missouri Western State University (2012–present):

2023 – **Rene Frye** (senior, in BIO 106)

2022 – **Colleen Menne** (senior, in BIO 106 and BIO 440, Spring and Fall); **Alyka Zahnd** (senior, BIO 307)

2021 – **Josiah Boothe** (senior, in BIO 106); **Guethre Ziebarth** (senior, in BIO 106); **Lauren Tinoco** (junior, in BIO 440);

2020 – **Alexis Hersh** (senior, in BIO 440);

2019 – **Jackie Herron** (senior, in BIO 307);

2018 – **Morgan Wells** (junior, in BIO 106); **Tatum Thomason** (junior, in BIO 106);

2017 – **Hailey Babcock** (junior, in BIO 106);

2016 – **Joe Glise** (junior, in BIO 106); **Tess Campbell** (senior, in BIO 106)

2015 – **Allison Reed** (senior, in BIO 106); **Jami Kellam** (senior, in BIO 106); **Jasmine Colon** (senior, in BIO 106)

2014 - **Tiffany Zaroor** (senior, in BIO 106); **Dillon Howe** (senior, in BIO 101); **Jessica Foster** (junior, in BIO 106); **Bridgette French - Harbison** (junior, in BIO 101)
 2013 - **Matalie Ann Lynch (Place)** (senior, in BIO 106); **Diana Ackermann** (senior, in BIO 106); **Dillon Howe** (junior, in BIO 101); **Crystal Daggett** (junior, in BIO 101)

High school teaching:

Apaczai Csere Janos Lyceum, Cluj Napoca, Romania, (junior and senior) Biology, 2000
 Brassai Samuel Lyceum, Cluj Napoca, Romania, 12th-grade (senior) Biology, 1999
 Bathory Istvan Lyceum, Cluj Napoca, Romania, 9th-grade (freshman) Chemistry, 1999

PEER-REVIEWED PUBLICATIONS

Journal Publications (peer-reviewed) (* denotes student co-author)

- (1) Barta, C., Svojanovsky, S., and Székely, G. (2026). **Cultivating discovery: Building a research-centered learning ecosystem through authentic undergraduate applied research in plant science.** Journal of Applied Learning in Higher Education, JALHE, 12 (October, 2026). *In press.*
- (2) Szekely, G., and Barta, C. (2025) **Harnessing halophyte-derived allelochemicals and signaling molecules to enhance salinity tolerance in crops.**, American Journal of Botany, (Impact Factor 2.4, Q1 in Plant Science and Q1 in Ecology, Evolution, Behavior and Systematics), 112:e70076; <https://doi.org/10.1002/ajb2.70076>
- (3) Szekely, G., and Barta, C. (2024) **Halophytes and proline: a promising possibility for the remediation of heavy metal contamination for agricultural restoration.** Hungarian Journal of Industry and Chemistry/Biotechnology, 52 (2).<https://doi.org/10.33927/hjic-2024-20>
- (4) Barta, C., *Jenkins, B.C., *Lindstrom, D.S., *Zahnd, A.K., Szekely, G. **The first evidence of gibberellic acid's ability to modulate target species sensitivity to honeysuckle (*Lonicera maackii*) allelochemicals,** Plants (Impact Factor 4.8, Q1 in Plant Science), 12, 1014, 2023, <https://doi.org/10.3390/plants12051014>
- (5) Barta, C., *Jenkins, B.C., *Lindstrom, D.S., *Zahnd, A.K., Szekely, G. **The first evidence of gibberellic acid's ability to modulate target species sensitivity to honeysuckle (*Lonicera maackii*) allelochemicals,** Peeref Poster Publication, April, 2023, <https://doi.org/10.54985/peeref.2304p6126090>
- (6) Szekely, G., *Szigyarto, NZ, *Toth, A and Barta, C., **The rhizosphere of *Petrosimonia triandra* may possess salinity tolerance inducing potential,** Hungarian Journal of Industry and Chemistry/Biotechnology, 50 (2): 11–15 2022, <https://doi.org/10.33927/hjic-2022-12>
- (7) Szekely, G. and Barta, C. **Plant growth promoting Rhizobacteria: biotechnological tools to improve cereal yields,** Hungarian Journal of Industry and Chemistry/Biotechnology, 50 (1): 11–14, 2022, <https://doi.org/10.33927/hjic-2022-03>
- (8) Barta, C., **Abiotic Stress Responses in Plants (Editorial),** Horticulturae (MDPI), 19/1, 2019
- (9) Barta, C., *Bolander, B., *Bilby, S., *Brown, J., *Brown, R., *Duryee, A.M., *Edelman, D., *Gray, C., *Gossett, C., *Haddock, A., *Helsel, M., *Jones, A., *Klingseis, M., *Leslie, K., *Miles, E., *Prawitz, R., ***In situ* dark adaptation enhances the efficiency of DNA extraction from mature pin oak (*Quercus palustris*) leaves, facilitating the identification of partial sequences of the 18S rRNA and isoprene synthase (*IspS*) genes.** –Plants, 6(4), 52, 2017, <https://doi.org/10.3390/plants6040052>
- (10) *Jones, A., *Brown, R., *Prawitz, R. and Barta, C., ***Quercus palustris* 18S ribosomal RNA gene, partial sequence (MF360746.1),** Gen Bank, published gene sequence, NCBI, National Center for Biotechnology Information, 2017
- (11) Kaling M., Kanawati B., *Ghirardo A., Albert A., Winkler J.B., Heller, W., Barta, C., Loreto, F., Schmitt-Kopplin P., Schnitzler J.P., **UV-SI: UV-B mediated metabolic rearrangements in poplar revealed by non-targeted metabolomics.**, Plant Cell and Environment, 38(5):892–904, 2015, <https://doi.org/10.1111/pce.12348>

- (12) Wachter R.M., Salvucci M.E., Carmo-Silva A.E., Barta C., Genkov T., Spreitzer R.J., **Activation of interspecies-hybrid Rubisco enzymes to assess different models for the Rubisco-Rubisco activase interaction**, Photosynthesis Research 117(1–3): 557–566, 2013, <https://doi.org/10.1007/s11120-013-9827-0>
- (13) Barta, C., Wachter, R.M., Dunkle, A.M., Salvucci, M.E., **Structural changes associated with the acute thermal instability of Rubisco activase**, Archives of Biochemistry and Biophysics 499 (1-2):17-25, 2010,<https://doi.org/10.1016/j.abb.2010.04.022>
- (14) Salvucci, M.E., Barta, C., Byers, J.A., *Canarini, A., **Photosynthesis, and the partitioning of carbon between carbohydrates and isoprenoid pathway products in vegetatively active and dormant guayule: physiological and environmental constraints on rubber accumulation in a semi-arid shrub**, Physiologia Plantarum, 140(4):368-379, 2010,<https://doi.org/10.1111/j.1399-3054.2010.01409.x>
- (15) Behnke, K., Kaiser, A., Zimmer, I., Brüggemann, N., Janz, D., Polle, A., Hampp, R., Hänsch, R., Popko, J., Schmitt-Kopplin, P., Ehlting, B., Rennenberg, H., Barta, C., Loreto, F., Schnitzler, J.P., **RNAi-mediated suppression of isoprene emission in poplar transiently impacts phenolic metabolism under high temperature and high light intensities: a transcriptomic and metabolomic analysis**, Plant Molecular Biology, 74(1-2):61-75, 2010, <https://doi.org/10.1007/s11103-010-9654-z>
- (16) Velikova, V., Tsonev, T., Barta, C., Centritto, M., Koleva, D., Stefanova, M., Busheva, M., Loreto, F., **BVOC emissions, photosynthetic characteristics and changes in chloroplast ultrastructure of *Platanus orientalis* L. exposed to elevated CO₂ and high temperature**, Environmental Pollution, 157(10): 2629-2637, 2009,<https://doi.org/10.1016/j.envpol.2009.05.007>
- (17) *Fortunati, A., Barta, C., *Brilli, F., Centritto, M., Zimmer, I., Schnitzler, J.P., Loreto, F., **Isoprene emission is not temperature-dependent during and after severe drought-stress: a physiological and biochemical analysis**, The Plant Journal 55(4):687-697, 2008,<https://doi.org/10.1111/j.1365-313X.2008.03538.x>
- (18) Timperio, A.M., D'Amici, G.M., Barta, C., Loreto, F., Zolla, L., **Proteomic, pigment composition and organization of thylakoid membranes in iron-deficient spinach leaves**, Journal of Experimental Botany, 58(13):3695-3710, 2007,<https://doi.org/10.1093/jxb/erm219>
- (19) *Brilli, F., Barta, C., *Fortunati, A., Lerdau, M., Loreto, F., Centritto, M., **Response of isoprene emission and carbon metabolism to drought in white poplar (*Populus alba*) saplings**, New Phytologist, 175(2):244-254, 2007,<https://doi.org/10.1111/j.1469-8137.2007.02094.x>
- (20) Loreto, F., Centritto, M., Barta, C., Calfapietra, C., *Fares, S., Monson, R.K., **The relationship between isoprene emission rate and dark respiration rate in white poplar (*Populus alba* L) leaves**, Plant Cell and Environment, 30(5):662-669, 2007,<https://doi.org/10.1111/j.1365-3040.2007.01648.x>
- (21) *Fares, S., Barta, C., *Brilli, F., Centritto, M., Ederli, L., Ferranti, F., Pasqualini, S., Reale, L., Tricoli, D., Loreto, F., **Impact of high ozone on isoprene emission and some anatomical and physiological parameters of developing *Populus alba* leaves directly or indirectly exposed to the pollutant**, Physiologia Plantarum, 128:456-465, 2006,<https://doi.org/10.1111/j.1399-3054.2006.00750.x>
- (22) Loreto, F., Barta, C., *Brilli, F., Nogues, I., **On the induction of volatile organic compound emissions by plants as consequence of wounding or fluctuations of light and temperature**, Plant Cell and Environment, 29: 1820-1828, 2006,<https://doi.org/10.1111/j.1365-3040.2006.01561.x>
- (23) Barta, C., Loreto, F., **The relationship between the methyl-erythritol phosphate (MEP) pathway leading to emission of volatile isoprenoids and abscisic acid content in leaves**, Plant Physiology, 141: 1676-1683, 2006,<https://doi.org/10.1104/pp.106.083063>
- (24) Erdei, N., Barta, C., Hideg, E., Boddi, B., **Light-induced wilting and its molecular mechanism in epicotyls of dark-germinated pea (*Pisum sativum* L.) seedlings**, Plant Cell and Physiology, 46(1): 185-191, 2005,<https://doi.org/10.1093/pcp/pci012>
- (25) Barta, C., Kálai, T., Hideg, K., Vass, I., Hideg, É., **Differences in the ROS generating efficacy of various ultraviolet wavelengths in detached spinach leaves**, Functional Plant Biology, 31: 23-28, 2004, <https://doi.org/10.1071/FP03170>

- (26) Barta, C., Kálai, T., Vass, I., Hideg, É., **Dansyl- and rhodamine-based fluorescent sensors for detecting singlet oxygen and superoxide production in plants *in vivo***, *Acta Biologica Szegediensis*, 46, 149-150, 2002
- (27) Hideg, É., Barta, C., Kálai, T., Vass, I., Hideg, K., Asada, K., **Detection of singlet oxygen and superoxide with fluorescent sensors in leaves under stress by photoinhibition or UV-radiation**, *Plant Cell and Physiology*, 43: 1154-1164, 2002 (top 3 of online accesses for *Plant Cell Physiology* in 2002), <https://doi.org/10.1093/pcp/pcf145>

Book chapters (peer reviewed)

- (28) Barta C., Carmo-Silva, A.E., Salvucci M.E., **Purification of Rubisco Activase from Leaves or after Expression in *Escherichia coli***, *Photosynthesis Research Protocols, Methods in Molecular Biology*, Springer, Humana Press, Ed. Carpentier, R., 684:363-374, 2011, https://doi.org/10.1007/978-1-60761-925-3_28
- (29) Barta C., Carmo-Silva, A.E., Salvucci M.E., **Rubisco Activase Activity Assays**, *Photosynthesis Research Protocols, Methods in Molecular Biology*, Springer, Humana Press, Ed. Carpentier, R., 684:375-382, 2011, https://doi.org/10.1007/978-1-60761-925-3_29
- (30) Carmo-Silva, A.E., Barta C., Salvucci M.E., **Isolation of Ribulose-1,5 Bisphosphate Carboxylase/Oxygenase from Leaves**, *Photosynthesis Research Protocols, Methods in Molecular Biology*, Springer, Humana Press, Ed. Carpentier, R., 684:339-347, 2011, https://doi.org/10.1007/978-1-60761-925-3_26

Editorials and Edited Special Issues

Agriculture (MDPI), Guest Editor Note, Special Issue “Cellular Signaling Networks in Crop Stress Responses” (2025–2026)

Horticulture (MDPI), Guest Editor Note, Special Issue “Abiotic Stress Responses of Plants”, 2018-2019 (*published*)

Selected conferences/Seminar proceedings (* denotes student author)

Invited Speaker/Conference Talk

- (1) Barta, C., facilitator, **Harnessing Artificial Intelligence (AI) to advance research productivity and integrate research-based teaching at PUIs**. Primarily Undergraduate Institution (PUI) Faculty Professional Development Workshop, Plant Biology 2026, Ottawa, Ontario, Canada, July 18, 2026.
- (2) Barta, C., **Interlinked multi-level course-based undergraduate research experiences (CUREs) support the development of marketable plant science skills and encourage student retention in STEM fields.**, Conference on Applied Learning in Higher Education, CALHE, March 7, 2026, St. Joseph, MO.
- (3) Barta C., **Plants and their pollinators**, 2026 Core Training, Missouri Master Naturalist, Loess Hills Chapter, April 30, 2026, St. Joseph, MO
- (4) Barta, C., **Two interlinked course-based undergraduate research experiences (CUREs) to support the development of marketable skills in plant sciences and encourage student retention in STEM fields.** Society for the Advancement of Biology Education Research (SABER) Midwest and the National Association of Biology Teachers (NABT) Joint Conference, St. Louis, MO, Oct. 30, 2025.
- (5) Barta, C., **Your Next Chapter: A Guide to Becoming a PUI Professor.**, Webinar Panel presented at the American Society of Plant Biologists - ASPB, Webinar on Oct. 3, 2025.
- (6) Barta, C., **Publishing with undergraduates: challenges and successes - PUI Playbook Series - Inaugural Keynote**, American Society of Plant Biologists - ASPB - PUI Section - Networking Presentation and Session Event, Webinar on Sept. 26, 2025.
- (7) Barta, C., Wang, D., Thines, B., **PUI Faculty Professional Development Workshop: Work smarter, not harder - time mastery techniques to maximize your plant science research productivity.**, Plant Biology 2025, Milwaukee, WI, July 27, 2025.

- (8) Barta, C., **Summer Faculty Research Grants 2024 and 2025 - Research and Outcomes.**, Western Foundation Full Board (on-campus, local), 2025
- (9) Grantham, M.L., Walton, K., Barta, C., Jedlicka, J., Baker, J., Eckdahl, T., **CUREs for applied learning in existing undergraduate laboratory courses.**, Conference for Applied Learning in Higher Education, Missouri Western State University, March 7, 2025.
- (10) Barta, C., **Plant-pollinator co-evolution**, Missouri Master Naturalists, workshop, May 9th, 2024 (Regional)
- (11) Barta, C., *Jenkins, B.C., *Lindstrom, D.S., *Zahnd, A.K., Szekely, G. **The first evidence of gibberellic acid's ability to modulate target species sensitivity to honeysuckle (*Lonicera maackii*) allelochemicals**, 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO (State).
- (12) *Frye, R. and Barta, C., **Enhancing crop defense strategies and productivity through the utilization of biogenic plant volatile organic compounds (VOCs) in agriculture.**, 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO (State)
- (13) *Frye, R. and Barta, C., **Enhancing crop defense strategies and productivity through the utilization of biogenic plant volatile organic compounds (VOCs) in agriculture: a case study.**, 2023 Plant Biology Meeting, Aug. 5–9, CORTEVA Showcase, 2023 Savannah, GA (International)
- (14) Newton, A., Barta, C., and Chevalier, C., **The Missouri Western State University's John Rushin Teaching and Research Prairie: aspects of multidisciplinary biology research in an outdoors applied learning laboratory.**, 83rd Midwest Fish and Wildlife Conference, Overland Park, Kansas, Feb.12–14, 2023
- (1) Barta C., **The chemistry of Fall**, Master Naturalists Organization, St. Joseph, MO., November 2022.
- (2) Barta C., **Isoprene: a volatile with multifaced roles in plant-environment interactions**, virtual, Babes-Bolyai University of Cluj-Napoca, Institute of Biology and Ecology, 26th July 2022
- (3) Barta, C., Newton, A., and Chevalier, C., **The Missouri Western State University's John Rushin Teaching and Research Prairie: the first year of multidisciplinary biology research in an outdoors applied learning laboratory.**, Conference on Applied Learning in Higher Education (CALHE), St. Joseph, MO, April 21–23, 2022
- (4) Barta C., **The impact of a warming climate on volatile-mediated plant-environment communications**, public virtual seminar, hosted by the Ecumenical Eco-Justice (EEJ) Organization, St. Joseph, MO, Nov. 18, 2021
- (5) Barta C., **Plant volatiles – applications in modern agriculture.**, International Conference on Engineering, Science and Technology (IConEST), virtual, 2021
- (6) Barta, C., **Will the capacity to emit isoprene contribute to delaying plant senescence (aging) in a “volatile” future?** Public Seminar, Virtual Scholarship Summit, Center for Teaching and Learning, MWSU, 2021
- (7) Barta, C., **Plants' Arsenal for Waging Chemical Warfare on Their Unsuspecting Neighbors: Does the Synthesis and Release of Secondary Negative Allelopathic Metabolites into the Environment Provide a Competitive Advantage to Invasive Plant Species in Missouri Habitats?**, Public Seminar, Virtual Scholarship Summit, Center for Teaching and Learning, MWSU, 2020
- (8) Barta, C., **The Science Behind Climate Change**, Public Seminar sponsored by the Kiwani's Club, St. Joseph, MO, 2020
- (9) Barta, C., **For the love of Trees: Trees and Us**, Public Seminar, Tree Expo at the Center for Justice, Outreach and Yoga, Saint Joseph, MO, 2019
- (10) Barta, C. **Plants, and their Pollinators**, Public Seminar, Grand River Prairie Days, Dunn Ranch, Hatfield, MO, 2019
- (11) Barta, C., **Applied Learning in Plant Biology at MWSU: Challenges and Successes**, Conference on Applied Learning in Higher Education (CALHE), St. Joseph, MO, 2016
- (12) Barta, C., **Science, and Society: The Science and Politics of Climate Change.** – public seminar, St. Joseph, MO, 2015
- (13) Barta C., **Plants, meet your pollinators!** – Grand River Prairie Days, Missouri Department of Conservation, Dunn Ranch, MO, 2015
- (14) Barta, C., **Teaching students about research.** Conference on Applied Learning in Higher Education (CALHE), St. Joseph, MO, 2015

- (15) Barta, C., **Plant-pollinator interactions**. Mini-course, 2x3 hours sessions, Master Naturalists and the Master Gardeners of the University of Missouri Extension Meeting, St. Joseph, MO, 2015
- (16) Barta, C., *Gramman, J., *White, S.L., Schade, G.W., **Drought impact on photosynthesis and isoprene emission capacities of oak species in urban and rural areas of Texas**, Plant Biology – American Society of Plant Biologists Meeting, Austin, TX, 2012
- (17) Barta, C., *Gramman, J., *White, S.L., Schade, G.W., **Biogenic volatiles and the atmosphere: does climate change affect local and global emissions?**, Department of Atmospheric Sciences, Texas A&M University, College Station, 22 Nov 2011
- (18) Barta, C., *Gramman, J., *White, S.L., Schade, G.W., **The effect of drought stress on carbon assimilation and isoprene emission capacities of oak species in urban and rural areas of Texas**, AGU Fall Meeting, San Francisco, 5-9th Dec 2011
- (19) Barta, C., Loreto, F., **Isoprene in the plant-environment interactions**, Texas A&M University, Department of Plant, Soil and Crop Sciences, 2011
- (20) Barta, C., Wachter, R.M., Dunkle, A.M., Salvucci, M.E., **The role of Mg²⁺ and adenine nucleotides in regulating Rubisco activase stability at high temperatures**, invited mini-symposium on Enzyme Regulation, Plant Biology 2010, Montreal, Canada, 2010
- (21) Barta, C., **The role of Mg²⁺ in determining Rubisco activase heat tolerance *in vitro***, ARS USDA and the Arizona State University Department of Biochemistry joint seminar, 2009
- (15) Barta, C., **Plant volatiles: secondary metabolites with multiple roles in the plant- environment interactions**, ARS-USDA seminar, 2008
- (16) Barta, C., *Fortunati, A., *Brilli, F., Loreto, F., **Arabidopsis transformed to emit isoprene are more resistant to high light and high temperatures and show a different intracellular redox balance than non-emitting wild types**, 8th TERPNET Meeting, Strasbourg, France, 2007
- (17) Barta, C., Loreto, F., Zolla, L., Timperio, A.M., *D'Amici, G.M., **Proteomic, pigment composition and organization of thylakoid membranes in iron-deficient spinach leaves**, Plant Proteomics in Europe Workshop, Munich, Germany, 2007
- (18) Barta, C., *Fortunati, A., *Brilli, F., Loreto, F., **Does isoprene protect cellular membranes from oxidative damages?** 37th Membrane Transport Congress, Sumeg, Hungary, 2007
- (19) Barta, C., *Brilli, F., *Fortunati, A., Monson, R.K., Loreto, F., **Isoprene: a metabolite with multiple roles in the plant-environment interaction**, ISONET -VOCBAS Short Course, Kuopio, Finland, 2006
- (20) Barta, C., Nogues Gonzalez, I., *Brilli, F., Velikova, V., Loreto, F., **Does isoprene protect leaves against photoinhibition?**, IInd ISONET Meeting, Benediktbeuren, Germany, 2005
- (21) Barta, C., Kálai, T., Vass, I., Hideg, K., Hideg É., **Differences in the *in vivo* ROS generating efficacy of different UV-A and UV-B wavelengths in leaves**, VOCBAS Summer School, Pieve Tesino, Italy, 2004
- (22) Barta, C., Kálai, T., Vass, I., Hideg, K., Hideg É., **Study of the UV- radiation generated ROS production in tobacco leaves**, IIIrd Hungarian Plant Physiology Conference, Szeged, 2002
- (23) Barta, C., Kálai, T., Vass, I., Hideg, K., Hideg É., **Action spectrum of ROS production under different wavelength UV stress**, Bioinformatics Training Course, Warsaw, Poland, 2002
- (24) Barta, C., Kálai, T., Vass, I., Hideg, K., Hideg É., **Action spectrum of ROS production under UV stress**, IInd Chemistry and Biochemistry of Antioxidants Course, Wageningen, The Netherlands, 2002

[Selected poster presentations/Proceedings \(international, national, and state\) \(* denotes student author\)](#)

- (1) Barta, C., **Cultivating spatial thinking: Integrating GIS, remote sensing, and aquatic plant ecology into undergraduate research at a primarily undergraduate institution**. Plant Biology 2026, Ottawa, Ontario, Canada, July 18–22, 2026 – international.
- (2) *Schlorff, P.A., *Thompson, M., *Ramey, J., Barta, J., Tamez, A., *Frye, R., *Weber, S., *King, A., *Menne, C., Svojanovsky, S., Szekely, G., and Barta, C., **Evidence for improved ion regulation in salt-stressed tomato following soil amendment with velvet bean endosperm**. Plant Biology 2026, Ottawa, Ontario, Canada, July 18–22, 2026 – international.

- (3) *Schlorff, P.A., *Thompson, M., *Ramey, J., Barta, J., Tamez, A., *Frye, R., *Weber, S., *King, A., *Menne, C., Svojanovsky, S., Szekely, G., and Barta, C., **Velvet Bean Endosperm Enhances Tomato Growth and Salinity Tolerance Across a Wide Range of Salt Stress Conditions**, Plant Biology 2026, Ottawa, Ontario, Canada, July 18–22, 2026 – international.
- (4) *Schlorff, P.A., *Thompson, M., *Ramey, J., Barta, J., Tamez, A., *Frye, R., *Weber, S., *King, A., *Menne, C., *Larison, T., Svojanovsky, S., Szekely, G., and Barta, C., **Velvet Bean Endosperm Preserves Photosynthetic Function and Pigment Content in Salt-Stressed Tomato Plants**, Plant Biology 2026, Ottawa, Ontario, Canada, July 18–22, 2026 – international.
- (5) *Thompson, M., *Schlorff, P.A., *Haynes-Green, B., *Ramey, J., *Frye, R., *Justus, A., *King, A., *Menne, C., *Weber, S., Svojanovsky, S., Szekely, G., and Barta, C., **Degrading velvet bean seed allelochemicals' potential applications for environmental restoration, prairie- and wildland management**. Missouri Academy of Science (MAS) Annual Meeting, Springfield, MO, April 10–11, 2026 – state.
- (6) *Ramey, J., *King, A., *Keithley, D., *Larison, T., Svojanovsky, S., and Barta, C., **Harnessing remote sensing via drone- and satellite imagery and machine learning for urban pond ecosystem health assessment**. Missouri Academy of Science (MAS) Annual Meeting, Springfield, MO, April 10–11, 2026 – state.
- (7) Barta, C., *Schlorff, P.A., *Haynes-Green, B., *Thompson, M., *Ramey, J., *Frye, R., *King, A., *Menne, C., *Larison, T., *Weber, S., Svojanovsky, S., and Szekely, G., **Velvet bean (*Mucuna pruriens*) seed endosperm amendment improves mineral nutritional balance and ionic homeostasis in salt-stressed tomato plants**. Missouri Academy of Science (MAS) Annual Meeting, Springfield, MO, April 10–11, 2026 – state.
- (8) *Haynes-Green, B., *Schlorff, P.A., *Thompson, M., *Ramey, J., *Frye, R., *Justus, A., *King, A., *Menne, C., *Weber, S., Svojanovsky, S., Szekely, G., and Barta, C., **Functional divergence of velvet bean seed tissues reveals contrasting chemical effects on tomato physiology and photosynthetic performance**. Missouri Academy of Science (MAS) Annual Meeting, Springfield, MO, April 10–11, 2026 – state.
- (9) Barta, C., **Interlinked multi-level course-based undergraduate research experiences (CUREs) support the development of marketable plant science skills and encourage student retention in STEM fields.**, Conference on Applied Learning in Higher Education, CALHE, March 7, 2026, St. Joseph, MO.
- (10) *Schlorff, P.A., *Thompson, M., *Haynes-Green, B., *Ramey, J., *Weber, S., *Frye, R., *Larison, T., Svojanovsky, S., and Barta, C., **Velvet bean seed soil inclusions decrease the salt stress susceptibility of tomato.**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 6th, 2026 – national.
- (11) *Thompson, M., *Haynes-Green, B., *Schlorff, P.A., *Ramey, J., *Weber, S., *Frye, R., *Larison, T., Svojanovsky, S., and Barta, C., **Competition between velvet bean and prairie grasses.**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 6th, 2026 – national.
- (12) *Ramey, J., *Keithley, D., *Larison, T., and Barta, C. **Harnessing remote sensing via drone- and satellite imagery platforms and machine learning for urban pond and water quality and pond ecosystem health assessment**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 6th, 2026 – national.
- (13) *Ramey, J., *Keithley, D., *Larison, T., and Barta, C. **Harnessing remote sensing and machine learning for urban pond water quality and pond ecosystem health assessment: a novel frontier in aquatic monitoring with ecological and conservation benefits**, Missouri Natural Resources Conference, 2026, Lake of the Ozarks, MO, 2026, February 3–5 - state.
- (14) *Thompson, M., *Weber, S., *Frye, R., *Larison, T., Svojanovsky, S., and Barta, C., **Degrading velvet bean seeds release allelochemicals, which stimulate the growth, biomass, light energy utilizing capacity, and environmental stress resistance of plants: implications for environmental management and plant species conservation.**, Missouri Natural Resources Conference, 2026, Lake of the Ozarks, MO, 2026, February 3–5 - state.
- (15) Barta, C., **Two interlinked course-based undergraduate research experiences (CUREs) to support the development of marketable skills in plant sciences and encourage student retention in STEM fields. - P#100-04.**, Plant Biology 2025, Milwaukee, WI, July 27, 2025. – international

- (16) *King, A., *Frye, R., *Larison, T., *Menne, C., *Burroughs, N., *Schneider, J., *Weber, S., Svojanovsky, S., Szekely, G., and Barta, C., **Velvet bean soil amendments enhance growth, biomass accumulation, and light energy use efficiency in tomato plants.- P#900–26.**, Plant Biology 2025, Milwaukee, WI, July 27, 2025. – international
- (17) *King, A., *Frye, R., *Weber, S., Svojanovsky, S., Szekely, G., and Barta, C., **Uncovering the plant growth-promoting role of L-DOPA: Insights from velvet bean seed metabolomics-** P#900–24., Plant Biology 2025, Milwaukee, WI, 27, 2025., – international
- (18) Barta, C., *King, A., *Frye, R., *Weber, S., Svojanovsky, S., Szekely, G., **Growth in soil amended with degrading velvet bean seeds enhances salt stress resistance in tomato** - P#900–15. Plant Biology 2025, Milwaukee, WI, July 27, 2025 – international
- (19) Barta, C., *King, A., *Frye, R., *Weber, *Justus, A., S., Svojanovsky, S., Szekely, G., **L-DOPA, a promising plant growth stimulant: insights from velvet bean seed metabolomics**, Missouri Academy of Science Annual Meeting, Warrensburg, MO, April 12, 2025. - state
- (20) *King, A., *Frye, R., *Larison, T., *Menne, C., *Burroughs, N., *Schneider, J., *Weber, S., Svojanovsky, S., Szekely, G., and Barta, C., **Velvet bean soil inclusions enhance the growth, biomass, and light energy utilizing capacity of tomato plants.**, Missouri Academy of Science Annual Meeting, Warrensburg, MO, April 12, 2025. - state
- (21) Barta, C., *King, A., *Frye, R., *Weber, S., Svojanovsky, S., Szekely, G., **Velvet bean soil inclusions enhance salt stress resistance in tomato**, Missouri Academy of Science Annual Meeting, Warrensburg, MO, April 12, 2025. – state
- (22) Barta, C., Chevalier, C., Ganong, C., Mills, M.S., Newton, A.A., Roy, T., **The Missouri Western State University’s John Rushin Teaching and Research Prairie: The first four years of prairie reconstruction and multidisciplinary biology research in an outdoor Applied Learning laboratory.**, Missouri Academy of Science Annual Meeting, Warrensburg, MO, April 12, 2025. – state
- (23) Barta, C., **Developing marketable plant science research skills through course-based applied research modules.**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 6th, 2025 – national.
- (24) *King, A., *Frye, R., *Justus, A., *Weber, S., Svojanovsky, S., and Barta, C., **Impact of L-Dopa on the growth and development of Brassica: Insights from velvet bean (*Mucuna pruriens*) seed metabolomics.**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 6th, 2025 – national.
- (25) Barta, C., Chevalier, C., Ganong, C., Mills, M., Newton, A., Roy, T. **The Missouri Western State University’s John Rushin Teaching and Research Prairie: the first four years of prairie reconstruction and multidisciplinary biology research in an outdoor Applied Learning laboratory.**, Missouri Natural Resources Conference, 2025, Lake of the Ozarks, MO, 2025, February 19–21 - state.
- (26) *Weber, S., *Frye, R., *Larison, T., *Schneider, J., *Justus, A., *King, A., Svojanovsky, S. and Barta, C. **The impacts of L-Dopa on plant growth and development, at the 2025 Missouri Natural Resources Conference in the Lake of the Ozarks, Missouri.**, Missouri Natural Resources Conference, 2025, Lake of the Ozarks, MO, 2025, February 19–21 - state.
- (27) Barta, C., *Larison, T., *Menne, C. **Prairie plant species’ vulnerability to biological invasions: velvet bean (*Mucuna pruriens*) suppresses big bluestem (*Andropogon gerardii*) growth and development** Missouri Natural Resources Conference, 2025, Lake of the Ozarks, MO, 2025, February 19–21 - state.
- (28) *Weber, S., *Frye, R., *Larison, T., *Schneider, J., *Menne, C., *Justus, A., *Kuy, J., *Burroughs, N., *Firsching, M., *King, A., and Barta, C. **Tomato (*Solanum lycopersicum*) growth-enhancing effects of velvet bean (*Mucuna pruriens*) seed inclusions in the soil and soil microbiome impacts on seed decomposition dynamics.**, Missouri Natural Resources Conference, 2025, Lake of the Ozarks, MO, 2025, February 19–21 - state.
- (29) *Weber, S., *Burroughs, N., *Frye, R., *Justus, A., *Menne, C., *Schneider, J., *King, A., and Barta, C. **Velvet bean soil inclusions enhance the photosynthetic assimilation efficiency of monocot and dicot plant**

- species.**, Missouri Natural Resources Conference, 2025, Lake of the Ozarks, MO, February 19–21, 2025 – state.
- (30) *Weber, S., *Burroughs, N., *Frye, R., *Justus, A., *Menne, C., *Schneider, J., *King, A., and Barta, C. **Velvet bean soil inclusions enhance the growth and development of the native prairie species, big bluestem (*Andropogon gerardii*), and delay the onset of senescence.**, 85th Midwest Fish and Wildlife Conference, Saint Louis, MO, January 19–22, 2025 - state.
 - (31) Barta, C., *Frye, R., *Weber, S., *Burroughs, N., *Justus, A., *Larison, T. **Impact of L-Dopa on the Growth and Development of Brassica: Insights from Velvet Bean (*Mucuna pruriens*) Seed Metabolomics.**, Plant Biology 2024, Honolulu, HI, June 23, 2024. – international.
 - (32) *Frye, R., *Larison, T., *Weber, S., *Schneider, J., *Menne, C., *Justus, A., *Kuy, J., *Burroughs, N., *Firsching, M., and Barta, C. **Growth-enhancing effects of velvet bean (*Mucuna pruriens*) seed inclusions on dicot species and the role of soil microbiome in decomposition dynamics.**, Plant Biology 2024, Honolulu, HI, June 23, 2024. - international, *SURF Award (1) presentation*.
 - (33) *Weber, S., *Burroughs, N., *Frye, R., *Justus, A., *Menne, C., *Schneider, J. and Barta, C. **Velvet bean soil inclusions enhance tomatoes' growth, biomass, and photosynthetic assimilation efficiency.**, Plant Biology 2024, Honolulu, HI, June 23, 2024. - international, *SURF Award (2) presentation*.
 - (34) *Larison, T., *Menne, C., and Barta, C., **Soil enrichment with degrading velvet bean (*Mucuna pruriens*) seeds enhances growth and delays senescence in big bluestem (*Andropogon gerardii*).**, Plant Biology 2024, Honolulu, HI, June 23, 2024.- international.
 - (35) Barta, C., *Jenkins, B., *Lindstrom, D., *Zahnd, A., Szekely, G. (talk!) **The first evidence of gibberellic acid's ability to modulate target species' sensitivity to honeysuckle (*Lonicera maackii*) allelochemicals**, 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO - state.
 - (36) *Frye, R. and Barta, C., (talk!) **Enhancing crop defense strategies and productivity through the utilization of biogenic plant volatile organic compounds (VOCs) in agriculture: a case study.** 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO - state.
 - (37) *Justus, A., *Burroughs, N., *Frye, R., *Kuy, J., *Menne, C., *Schneider, J., *Tinoco, L., *Weber, S. and Barta, C., **A three-year survey of the relationship between native and invasive plant species' success on the John Rushin Teaching and Research Prairie at Missouri Western State University.** 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO - state.
 - (38) *Larison, T., *Burroughs, N., *Frye, R., *Justus, A., *Weber, S., and C. Barta, **Prairie species' vulnerability to biological invasions.** 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO, - state.
 - (39) *Weber, S., *Burroughs, N., *Frye, R., *Justus, A., *Menne, C., *Schneider, J., and Barta, C. **Velvet bean soil inclusions enhance the growth, biomass, and photosynthetic assimilation efficiency in tomato.** 2024 Missouri Academy of Science (MAS), Apr. 13, 2024, St. Joseph, MO, - state
 - (40) Barta, C. **Learning marketable plant science research skills in course-based original applied research modules.**, 2024, Conference on Applied Learning in Higher Education, CALHE, March 7th, 2024, St. Joseph, MO – national.
 - (41) *Weber, S., *Larison, T., *Justus, A., *Burroughs, N., *Frye, R., *Schneider, J., *Kuy, J., *Menne, C., *Pavini, A., and Barta, C., **Plant competitive success on a conservation prairie**, 2024 Missouri Natural Resources Conference, Feb. 5–9, 2024 Osage Beach, MO - state
 - (42) *Weber, S., *Larison, T., *Justus, A., *Burroughs, N., *Frye, R., *Schneider, J., *Kuy, J., *Menne, C., *Pavini, A., Svojanovsky, S. and Barta, C., **Prairie species' vulnerability to biological invasions: velvet bean (*Mucuna pruriens*) suppresses big bluestem (*Andropogon gerardii*) growth and development**, 2023 Plant Biology Meeting, Aug. 5–9, 2023 Savannah, GA - international
 - (43) Barta, C., *Jenkins, B., *Lindstrom, D., *Zahnd, A., Szekely, G. **The first evidence of gibberellic acid's ability to modulate target species' sensitivity to honeysuckle (*Lonicera maackii*) allelochemicals**, 2023 Plant Biology Meeting, Aug. 5–9, 2023 Savannah, GA – international
 - (44) *Frye, R. and Barta, C., **Enhancing crop defense strategies and productivity through the utilization of biogenic plant volatile organic compounds (VOCs) in agriculture: a case study.**, 2023 Plant Biology Meeting, Aug. 5–9, 2023 Savannah, GA - international

- (45) *Burroughs, N., *Larison, T., *Justus, A., *Weber, S., *Frye, R., *Schneider, J., *Kuy, J., *Zahnd, A., *Poush, J., *Tinoco, L., *Menne, C., *Pavini, A., *Prawitz, R., Mills, M. and Barta, C., **The Missouri Western State University's John Rushin Teaching and Research Prairie: a three-year survey of native vs. invasive plant species' success after seeding and first controlled burn management.**, 2023 Plant Biology Meeting, Aug. 5–9, 2023 Savannah, GA - international
- (46) Barta, C., *Menne, C., *Larison, T., **Prairie grasses and biological invasions: velvet bean (*Mucuna pruriens*) suppresses big bluestem (*Andropogon gerardii*) growth and development.**, 83rd Midwest Fish and Wildlife Conference, Overland Park, Kansas, Feb.12–14, 2023 - international
- (47) Barta, C., *Zahnd, A., *Poush, J., *Larison, T., *Schneider, J., *Kuy, J., *Stafford, K. **The Missouri Western State University's John Rushin Teaching and Research Prairie: a two-year survey of native vs. invasive plant species' success after seeding.**, 83rd Midwest Fish and Wildlife Conference, Overland Park, Kansas, Feb.12–14, 2023 - international
- (48) Barta, C., *Menne, C., *Larison, T., **The impact of the semi-invasive velvet bean (*Mucuna pruriens*) on big bluestem (*Andropogon gerardii*) growth and development.**, 2023 Missouri Natural Resources Conference, Lake of the Ozarks, MO - state
- (49) Barta, C. **Learning plant development through a Course-Based Undergraduate Research Experience (CURE) in upper division Plant Morphology (BIO307): the first CURE module implemented in plant sciences at MWSU.**, Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, March 9, 2023 - national
- (50) *Menne C., *Larison, T., and Barta C., **Prairie species' vulnerability to biological invasions: velvet bean (*Mucuna pruriens*) suppresses big bluestem (*Andropogon gerardii*) growth and development.**, Joint Meeting of the Ecological Society of America and the Canadian Society for Ecology and Evolution, 2022, Montreal, Canada - international
- (51) Barta, C., *Zahnd, A., *Poush, J., *Tinoco, L., *Menne, C., and *Larison, T, **The John Rushin Teaching and Research Prairie at Missouri Western State University, as a model ecosystem for plant ecophysiology and conservation research: the first year vegetation and native-invasive competition survey.**, Plant Biology 2022, Portland, OR – international
- (52) *Zahnd, A. and Barta, C., **Bioactive Amur honeysuckle (*Lonicera maackii*) metabolites responsible for allelopathic inhibition of native species' seed germination and growth in Missouri.**, Plant Biology 2022, Portland, OR - international, *SURF Award presentation*
- (53) *Menne, C., *Zahnd, A., *Poush, J., *Garza, M., *Kyser, K., *Buehre, S., *Haddock, A., *Tinoco, L., and *Barta, C., **First year vegetation survey of the Missouri Western State University John Rushin Teaching and Research Prairie.**, Missouri Academy of Science Meeting, Central Methodist University, Fayette, MO, April 23rd, 2022 – state
- (54) *Menne, C., *Zahnd, A., *Poush, J., *Garza, M., *Kyser, K., *Buehre, S., *Haddock, A., *Tinoco, L., and *Barta, C., **First year vegetation survey of the Missouri Western State University John Rushin Teaching and Research Prairie.**, Conference on Applied Learning in Higher Education (CALHE), St. Joseph, MO, April 21–23, 2022 - national
- (55) *Zahnd, A. and Barta, C., **Does the synthesis and release of secondary negative allelopathic metabolites into the soil provide a competitive advantage to Amur honeysuckle (*Lonicera maackii*) in Missouri?**, Missouri Natural Resources Conference, Feb. 2022 - national
- (56) *Zahnd, A., *Poush, J. and Barta, C., **The John Rushin Teaching and Research Prairie at Missouri Western State University: First-Year Vegetation Success Survey of a Conservation Prairie.**, Missouri Natural Resources Conference, Feb. 2022 - state
- (57) Chevalier, C., *Reynolds, J., *Bremer, R., *Zahnd, A., *Poush, J., and Barta, C. **Missouri Western State University prairie savanna restoration tree survival: the first growing season.**, Midwest Fish and Wildlife Conference, 2022 – international
- (58) *Zahnd, A. and Barta, C., **Apigenin and luteolin, isolated from decomposing leaves of Amur honeysuckle affect differentially plant growth and development in a concentration dependent manner.** Plant Biology, virtual, 2021 - international

- (59) Barta, C., *Buehre, S., *Haddock, A., *Jenkins, B., *Lindstrom, D., *Meers, H., *Prawitz, R., *Tai, M., *Tinoco L., *Zahnd., A., **Chemical warfare in the plant world: does the synthesis and release of secondary negative allelopathic metabolites into the soil provide a competitive advantage to Amur honeysuckle (*Lonicera maackii*)?**, Ecological Society of America Meeting, virtual, 2021 –international
- (60) Barta, C., and Prawitz, R., **The role of isoprene in regulating senescence and leaf abscission in velvet bean (*Mucuna pruriens*)**., Ecological Society of America Meeting, virtual, 2021 –international
- (61) Barta, C. and *Zahnd, A., **Phytohormone additives prevent the allelopathic inhibition of Brassica seedling growth by apigenin, a phenolic metabolite released by the invasive Amur honeysuckle (*Lonicera maackii*) into the soil.**, Missouri Natural Resources Conference, virtual, 2021 – state.
- (62) Barta, C., *Buehre, S., *Haddock, A., *Jenkins, B., *Lindstrom, D., *Meers, H., *Prawitz, R., *Tai, M., *Tinoco L., *Zahnd., A., **Gibberellic acid supplementation decreases the negative allelopathic effects of Amur honeysuckle leaf extracts on mustard seed germination and growth.**, Missouri Natural Resources Conference, virtual, 2021 - state
- (63) *Haddock, A., *Buehre, S., *Poush, J., *Tai, M., *Tinoco, L., *Zahnd, A., Barta, C., **Could the capacity to emit isoprene affect plant senescence in a warming climate?** Missouri Academy of Science Convention, 2021 virtual - state
- (64) Barta, C., *Hersh, A., and *Kirschner, C., **Mechanisms at the basis of root growth deficiencies in Brassica plants treated with negative allelopathic inhibitors extracted from decomposing leaves of the invasive Amur honeysuckle.**, Plant Biology 2020, virtual - international
- (65) Barta, C., Svojanovsky, S., Hiley, S., *Morris, M., *Tinoco, L., *Thammarat, C.F., **Chemical profiling of negative allelopathic inhibitors extracted from decomposing Amur honeysuckle leaves.**, Plant Biology 2020, virtual - international
- (66) *Prawitz, R., and Barta, C.E., **Do variations in temperature and light conditions affect the relationship between isoprene emission and senescence in velvet bean (*Mucuna pruriens*)?** Plant Biology, San Jose, CA, 2019 – international, *SURF Award presentation*
- (67) Barta, C., *Brown, R., *Constable, W.K., *Hall, C.C., *Helsel, M.M., *Jenkins, B.C., *Jones, A., *Karns, N., *Kirchner, C., *Lindstrom, D., *Moore, K.D., *Moore, M.L., *Miles, E., *Morris, M., *Phelan, J., *Prawitz, R., *Schank, Z., *Straton, N., *Thammarat, C.F. 2019, **The identification of the gene encoding for isoprene synthase (*IspS*) in dominant Missouri oaks**, Plant Biology, San Jose, CA, 2019 - international
- (68) Barta, C., *Jenkins, B.C., *Lindstrom, D.S., *Reynolds, J., *Karns, N., *Constable, W.K., *Phelan, J., *Helsel, M.M., *Prawitz, R., *Brown, J., *Moore, M.L., *Moore, K.D., *Thammarat, C.F., **Phytohormone treatment alleviates the negative allelopathic effects of Amur honeysuckle (*Lonicera maackii*) leaf extracts on seed germination and growth**, Missouri Academy of Sciences (MAS), Maryville, MO, 2019 - state
- (69) *Lindstrom, D.S., *Jenkins, B.C., *Prawitz, R., *Helsel, M.M., *Constable, W.K., *Karns, N., *Phelan, J., *Jones, A., *Moore, M.L., *Moore, K.D., *Bolander, B., *Bilby, S., *Brown, J., *Duryee, A., *Edelman, D., *Gray, C., *Gossett, C., *Haddock, A., *Klingseis, M., *Leslie, K., *Miles, E., and Barta, C., **The identification of partial pin oak (*Quercus palustris*) and post oak (*Q. stellata*) isoprene synthase (*IsPS*) gene sequences**, Missouri Academy of Sciences (MAS), Maryville, MO, 2019 - state
- (70) *Prawitz, R., *Helsel, M.M., *Lindstrom, D.S., *Jenkins, B.C., *Constable, W.K., *Karns, N., *Phelan, J., *Jones, A., *Bolander, B., *Bilby, S., *Brown, J., *Duryee, A., *Edelman, D., *Gray, C., *Gossett, C., *Haddock, A., *Klingseis, M., *Leslie, K., *Miles, E., *Moore, M.L., *Moore, K.D., and Barta, C., **In situ dark adaptation increases the efficiency of DNA extraction from mature pin oak (*Quercus palustris*) leaves, facilitating gene identification studies**, Missouri Academy of Sciences (MAS), Maryville, MO, 2019 - state
- (71) Barta, C., *Jenkins, B.C., *Moore, M.L., *Moore, K.D., *Lindstrom, D.S., *Thammarat, C.F., *Reynolds, J., Svojanovsky, S.R., **Phytohormone treatment with gibberellic acid alleviates the negative allelopathic effects of Amur honeysuckle (*Lonicera maackii*) leaf extracts and juglone on seed germination and growth**, Missouri Natural Resources Conference (MNRC), Osage Beach, MO, 2019 - state
- (72) Barta, C., *Jenkins, C.B., *Moore, M. L., *Moore, K.D., *Lindstrom, D.S., *Thammarat, C.F., Svojanovsky, S., **Phytohormone treatment with gibberellic acid alleviates the negative allelopathic effects of Amur**

- honeysuckle (*Lonicera maackii*) leaf extracts on seed germination and growth**, Plant Biology, Montreal, Canada, 2018 – international
- (73) *Brown, R.N., *Jones, A.D., *Prawitz, R.A., *Helsel, M.M., *Moore, M.L., *Moore, K.D., *Constable, W.K., *Phelan, J., *Holland, E., *Bolander, B., *Bilby, S.R., *Brown, J.H., *Duryee, A.M., *Edelman, D.R., *Gray, C.E., *Gossett, C., *Haddock, A.G., *Klingseis, M.E., *Leslie, K., *Miles, E.W., Barta, C., Svojanovsky, S.R., **The identification of partial sequences of pin oak (*Quercus palustris*) and post oak (*Q. stellata*) isoprene synthase (*IspS*) genes**, Plant Biology, Montreal, Canada, 2018 – international
- (74) Barta, C., Bolander, B., Bilby, S., Brown, J., Brown, R., Duryee, A.M., Edelman, D., Gray, C., Gossett, C., Haddock, A., Helsel, M., Jones, A., Klingseis, M., Leslie, K., Miles, E., Prawitz, R., ***In situ* dark adaptation enhances the efficiency of DNA extraction from mature pin oak (*Quercus palustris*) leaves, facilitating the identification of partial sequences of the 18S rRNA and isoprene synthase (*IspS*) genes.**, Plant Biology, Montreal, Canada, 2018 – international
- (75) *Brown, R., *Jones, A., *Duryee, A., *Gray, C., *Edelman, D., *Klingseis, M., *Gossett, C., *Haddock, A., *Brown, J., *Bilby, S., *Miles, E., Barta, C. **DNA isolation and amplification from mature and senescing pin oak (*Quercus palustris*) leaves: challenges and solutions**, Plant Biology, Honolulu, HI, 2017 – international
- (76) Barta, C., *Miles, E., *Bolander, B., *Gray, C., *Jones, A., *Brown, R., *Edelman, D., *Campbell, J., **The impact of growth season length and sustained high temperatures on isoprene emission, oxidant-antioxidant balance and senescence in velvet bean (*Mucuna pruriens*)**, Plant Biology, Honolulu, HI, 2017 – international
- (77) *Gray, C., *Edelman, D., *Jones, A., *Brown, R., *Miles, E., *Bolander, B., *Pitcher, S., Barta, C. **Does isoprene influence the onset of senescence in oaks?**, Plant Biology, Honolulu, HI, 2017 – international
- (78) Barta, C., *Gray, C., *Edelman, D., *Jones, A., *Brown, R., *Miles, E., *Bolander, B., *Pitcher, S., **Isoprene indirectly impacts leaf shedding in Missouri oaks**, Missouri Natural Resources Conference (MNRC), 2017 – state
- (79) *Bolander, B., Barta, C., *Pitcher, S., *Miles, E., *Bartlett, J., *Scott, E., *Drake, **The role of plant volatiles in leaf senescence**, Plant Biology, Austin, TX, 2016 - international
- (80) Barta, C., **Plant physiological ecology research in a classroom setting: applied learning in undergraduate education.**, Ecological Society of America Meeting, Fort Lauderdale, FL, 2016- international
- (81) *Miles, E., *Gray, C., Barta, C., **Changes in isoprene synthase (*IspS*) gene expression in senescing pin oaks in Missouri**, Ecological Society of America Meeting, Fort Lauderdale, FL, 2016 -international
- (82) *Gray, C., *Miles, E., *Bolander, B., *Scott, E., *Wiley, M.K., *Steinlage, M., *Barta, C., **Prolonged high temperature-triggered metabolic changes delay senescence in the isoprene emitter velvet bean (*Mucuna pruriens*)**, Ecological Society of America Meeting, Fort Lauderdale, FL, 2016 - international
- (83) Barta, C., *Pitcher, S., *Bolander, B., *Miles, E., *Bartlett, J., *Scott, E., *Drake, D., **The relationship between isoprene emission, senescence and abscission in pin oaks (*Quercus palustris*)**, Plant Biology - American Society of Plant Biologists, Minneapolis, MN, 2015 – international
- (84) Barta, C., *Hughes, T., *Compton, C., *Williams, N., **Alterations in the spectral composition of the incident irradiation modulates isoprene emission and the environmental stress response of velvet bean (*Mucuna pruriens*)**, Ecological Society of America (ESA) Centennial Meeting, Baltimore, MD, 2015 - international
- (85) Barta, C. **Applied Learning in undergraduate ecology and ecophysiology education.** Ecological Society of America (ESA) Centennial Meeting, Baltimore, MD, 2015 - international
- (86) Barta, C., *Pitcher, S., *Bartlett, J., *Scott, E., *Seever, H., **Do alterations in leaf isoprene emission affect the timing of senescence in velvet bean (*Mucuna pruriens*)?**, Ecological Society of America (ESA) Centennial Meeting, Baltimore, MD, 2015 - international
- (87) Barta, C., Hatch, S., Svojanovsky, S., Rhoad, J., Ducey, M., Eckdahl, T., **Do multidisciplinary science camps enhance high school student learning and interest in pursuing a career in life-sciences?** Association of College and University Biology Educators (ACUBE) 59th Annual Meeting, St Joseph, MO, 2015 - national
- (88) *Pitcher, S., Barta, C., Drake, D., **GIS: a tool in plant eco-physiological studies.** Missouri Academy of Science, St. Joseph, MO, 2015 - state
- (89) Barta, C., *Pitcher, S., Drake, D., *Bartlett, J., *Scott, E., **Oak marcescence in Missouri: an ecophysiology study.** Missouri Academy of Science, St. Joseph, MO, 2015 - state

- (90) *Hughes, T., *Pitcher, S., *Mueller, P., *Campbell, J., Barta, C., **Models, and observations: predicting future isoprene emission loads into the atmosphere.** Missouri Academy of Science, St. Joseph, MO, 2015 - state
- (91) Barta, C., **Teaching students about research.** Conference on Applied Learning in Higher Education (CALHE), St. Joseph, MO, 2015 - national
- (92) *Pitcher, S., Barta, C., Drake, D., **GIS: a biological tool in the investigation of ecological consequences and the physiological mechanism at the basis of marcescence.,** 46th South Dakota State University Geography Convention, 2015 - state
- (93) Barta, C., *Payne, D., *Green, J., *Hullett, D., *Stalker, J., *Banez, C. M., *Pitcher, S., Drake, D. **Does isoprene play a role in the marcescence of oaks in Missouri?** Missouri Natural Resources (MNRC), Lake of the Ozarks, 2015 - state
- (94) Barta, C., *Pitcher, S., *Mueller, P., *Campbell, J., **Does accounting for adaptation to local climate reduce the gap between models and observations in predicting future isoprene emission loads into the atmosphere?,** 99th Ecological Society of America (ESA) Meeting, Sacramento, CA, 2014 - international
- (95) *Pitcher, S., *Payne, D., Drake, *D., Barta, C., **The ecophysiology of marcescence in dominant oak species in Missouri.,** 99th Ecological Society of America (ESA) Meeting, Sacramento, CA, 2014 - international
- (96) *Campbell, J., *Mueller, P., *Pitcher, S., Barta, C., **Narrowing the gap between models and observations in predicting future isoprene loads into the atmosphere: a modelling study.,** 9th Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, 2014 - national
- (97) *Campbell, J., *Mueller, P., *Pitcher, S., Barta, C., **Narrowing the gap between models and observations in predicting future isoprene loads into the atmosphere: a modelling study.,** NC-2 BBB District Conference, Papillion, NE, 2014 – regional/district
- (98) *Thornton, B. and Barta, C., **Applied learning through case-studies in plant physiology: The ecological, economic and cultural necessity of Mangrove ecosystems.,** 9th Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, 2014 - national
- (99) *Walker, W., *Howe, D., Barta, C., **The effects of abscisic acid (ABA) and gibberellic acid (GA3) on plant development.,** 9th Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, 2014 - national
- (100) *Olsen, B., *Herrod, C., *Reece, R., Barta, C., **The impact of soil acidification on plant nutrition.** 9th Conference on Applied Learning in Higher Education (CALHE), Saint Joseph, MO, 2014 - national
- (101) Barta, C., *Pitcher, S., *Mueller, P., *Hughes, T.O., *Campbell, J., **Isoprene emission from the vegetation: why don't emission models always get it right?,** Plant Biology Meeting, Portland, OR, 2014 - international
- (102) Barta, C., *Campbell, J., *Hughes, T. **Climate change feedback on plant isoprene emissions.,** Missouri Natural Resources Conference, Osage Beach, MO, 2014. – state
- (103) Barta, C., Gramman, J., White, S.L., Schade, G.W., **Do extreme drought conditions alter the relationship between photosynthesis and isoprene emission in oak species? An interannual study along an urban to rural environmental gradient.** Plant Biology – American Society of Plant Biologists Meeting, Providence, RI, 2013 - international
- (104) Gramman, J., Schade, G.W., Bryan, A., Barta, C., **Urban-to-Rural Environmental Gradients in the Houston Metropolitan Area,** AGU Fall Meeting, San Francisco, 2012
- (105) Barta, C., Gramman, J., White, S.L., Schade, G.W., **Drought impact on photosynthesis and isoprene emission capacities of oak species in urban and rural areas of Texas.,** Plant Biology – American Society of Plant Biologists Meeting, Austin, TX, 2012 – international
- (106) Barta, C., *Gramman, J., *White, S.L., Schade, G.W., **Drought impact on photosynthesis and isoprene emission capacities of oak species in urban and rural areas of Texas.,** Plant Biology – American Society of Plant Biologists Meeting, Austin, TX, 2012
- (107) Barta, C., Wachter, R.M., Dunkle, A.M., Salvucci, M.E., **Structural changes associated with the thermal instability of Rubisco activase,** Plant Biology, Montreal, Canada, 2010
- (108) Barta, C., *Gramman, J., *White, S.L., Schade, G.W., **Variations in the photosynthetic carbon assimilation and isoprene emission capacities of Texas oak species during the exceptional spring 2011 drought,** 96th ESA Meeting, Austin, TX, 2011

- (109) Barta, C., Wachter, R.M., Dunkle, A.M., Salvucci, M.E., **Structural changes associated with the thermal instability of Rubisco activase**, Plant Biology, Montreal, Canada, 2010
- (110) Salvucci, M.E., Barta, C., Byers, J.A., *Canarini, A., **Effect of temperature and CO₂ enrichment on photosynthesis and the levels of carbohydrates and isoprenoid pathway products in guayule, a latex-producing shrub**, Plant Biology, Montreal, Canada, 2010
- (111) Wachter, R.M., Barta, C., Chausse, A., Salvucci, M.E., **Biophysical studies of higher plant Rubisco activase**, 19th Western Photosynthesis Conference, Pacific Grove, CA, USA, 2010
- (112) Salvucci, M.E., Barta, C., Carmo-Silva E.A., Chausse, A., Wachter, R.M., **Prospects for improving photosynthetic performance at higher temperatures by re-engineering Rubisco activase**, 19th Western Photosynthesis Conference, Pacific Grove, CA, USA, 2010
- (113) Barta C., *Brilli, F., *Fortunati, A., Loreto, F., **Does the emission of oxygenated plant volatiles reflect stress-induced membrane damages?** 3rd Congress on Proton Transfer Mass Spectrometry (PTR-MS Congress), Obergurgl, Austria, 2007
- (114) Barta C., *Brilli, F., *Fortunati, A., Loreto, F., **Does isoprene synthesis in transformed *Arabidopsis thaliana* plants induce oxidative stress resistance by regulating intracellular redox balance?** Gordon Research Conference on Biogenic Hydrocarbons and the Atmosphere, Ventura, California, USA, 2007
- (115) Barta C., *Brilli, F., *Fortunati, A., Behnke, K., Schnitzler, J.P., Loreto F., **Does isoprene play a role in the adaptation of leaves to elevated ultraviolet irradiation by modulating the intra- foliar generation of reactive oxygen species (ROS)?** Botany and Plant Biology Joint Congress, Chicago, USA, 2007
- (116) *Brilli, F., Barta, C., *Fortunati, A., Centritto, M., Loreto, F., **The contribution of different carbon sources to isoprene biosynthesis during and after drought in *Populus* leaves**, ESF- VOCBAS Workshop, Wageningen, Netherland, oral presentation by Brilli, F., 2006
- (117) *Brilli, F., Barta, C., *Fortunati, A., Centritto, M., Loreto, F., **The contribution of different carbon sources to isoprene biosynthesis during and after drought stress in *Populus alba* leaves**, IIIrd European Geosciences Union (EGU) Congress, Wien, Austria, 2006
- (118) Barta, C., Velikova, V., Loreto, F., **The relationship between volatile isoprenoids and abscisic acid (ABA) biosynthetic pathway(s) in leaves**, IIIrd European Geosciences Union (EGU) Congress, Wien, Austria, solicited poster presentation, 2006
- (119) *Fortunati, A., *Brilli, F., Barta, C., Loreto, F., **Isoprene emission changes biological defence against environmental stresses in *Arabidopsis* plants**, XVth FESPB Congress, Lyon, France, 2006
- (120) Barta, C., Velikova, V., Loreto, F., **Isoprene proxies a pool of leaf abscisic acid (ABA) which regulates stomatal opening under both physiological and abiotic stress conditions**, XVth FESPB Congress, Lyon, France, 2006
- (121) *Brilli, F., Barta, C., *Fortunati, A., Centritto, M., Loreto, F., **Isoprene emission occurs independently of photosynthesis in drought stressed leaves**, IGAC Congress, Cape Town, South-Africa, 2006
- (122) *Brilli, F., Barta, C., *Fortunati, A., Centritto, M., Loreto, F., **Online analysis of the ¹³CO₂ labeling reveals the chloroplastic and extrachloroplastic carbon contribution to isoprene synthesis during drought stress in *Populus nigra* leaves**, ISONET -VOCBAS Course, Kuopio, Finland, 2006
- (123) *Fortunati, A., *Brilli, F., Barta, C., Loreto, F., ***Isp*s over-expression in *Arabidopsis thaliana* triggers changes in the emission pattern of other volatile organic compounds (VOCs)**, ISONET -VOCBAS Course, Kuopio, Finland, 2006
- (124) Barta, C., Nogues, I., Velikova, V., *Brilli, F., Loreto, F., **Exogenous isoprene alleviates photodamage in xanthophyll-cycle deficient *npq1* *Arabidopsis* mutants**, TERPNET Congress, Wageningen, Holland, 2005
- (125) Barta, C., Nogues Gonzalez, I., Velikova, V., *Brilli, F., Loreto, F., **The role of exogenous isoprene in protecting *Arabidopsis* mutants deficient in the xanthophyll-cycle (*npq1*) from high light**, XVIIth International Botanical Congress, Vienna, Austria, 2005
- (126) Barta, C., Nogues Gonzalez, I., *Brilli, F., Velikova, V., Loreto, F., **Biogenic volatile organic compound (BVOC) emissions from leaves induced by oxidative stresses**, ACCENT Symposium on Biogenic Organic Volatiles, Urbino, Italy, 2005

- (127) Velikova, V., Barta, C., Nogues Gonzalez, I., *Brilli, F., Fares, S., Loreto, F., **Isoprene in a changing environment – effect of high temperature on ozone and isoprene emission**, ACCENT Symposium on Biogenic Organic Volatiles, Urbino, Italy, 2005
- (128) Barta, C., Ogawa, K., Asada, K., Hideg, É., **The role of superoxide-dismutase in detoxifying reactive oxygen species in tobacco leaves exposed to UV-radiation**, 10th Congress of the European Society for Photobiology, Vienna, Austria, 2003
- (129) Barta, C., Vass, I., Hideg, É., **The role of superoxide-dismutase in detoxifying reactive oxygen species in tobacco leaves exposed to 290 or 360 nm UV**, Vth Hungarian Photosynthesis Conference and Advanced Photosynthesis School, Noszvaj, Hungary, 2003
- (130) Barta, C., Kálai, T., Sár, C., Hideg, K., Vass, I., Hideg, É., **Detection of ROS in plants: novel techniques**, IVth Hungarian Photosynthesis Meeting, Szeged, HAS-BRC, 2001
- (131) Hideg, É., Kálai, T., Barta, C., Ogawa, K., Vass, I., Hideg, K., Asada, K., **Detecting stress-induced reactive oxygen production in plants**, 9th Congress of the European Society for Photobiology, Lillehammer, Norway, 2001
- (132) Hideg, É., Asada, K., Barta, C., Bornman, J. F., Dudits, D., Hideg, K., Horváth, G. V., Kálai, T., Oberschall, A., Ogawa, K., Sár, C., Szilágyi, A., Vass, I., **Detecting ROS in plants under UV-B stress**, Plant and Ultraviolet-B Radiation Congress, Japan, oral presentation by Hideg E., 2000

Poster presentations – local (since 2012): coordinated over 1,000 students presenting their in-class applied learning projects at the MWSU Multidisciplinary Research Days in St. Joseph, MO, and research presentations of the Barta Team Isoprenado at PORTAL Showcases, representing our research with 6-9 posters each year.

Language Skills: English, Italian, Romanian and Hungarian (*fluent*); French, Spanish, German (*basic*)

LEADERSHIP AND SERVICE

A) Institutional Service and Leadership

1. Promotion and Tenure Committee, MWSU, 2025 – 2028.
2. Recruitment Committee, Secretary, Department of Biology, MWSU, 2025 – present
3. Academic Program Review Subcommittee Member for Wildlife and Conservation Management Major and Geography Minor. Contact person for Geography Minor, Department of Biology, MWSU, 2025–2026
4. MWSU Faculty Senate, Senator, Liaison to the Evaluation of Faculty Committee, 2024 - 2025
5. University Assessment Committee, MWSU, 2023–present
6. MWSU Faculty Senate Executive Board and FS Secretary, 2023-2024
7. MWSU Faculty Senator and Liaison to the Grievance Committee, 2023
8. MWSU Faculty Senate Vice-President (and Executive Board Member), 2021-2022
9. MWSU Financial Advisory Council, Member, 2022
10. Provost Search Committee, Member, MWSU, 2021-2022
11. MWSU – Family Day – Biology Exhibitor, September 2022
12. MWSU Strategic Plan Progress Review Focus Group, participant, August 24th, 2022
13. World Wildlife Day Promotional Video, Editor/Producer/PR, Recruiting, March 30th, 2022
14. MWSU Instagram Takeover, Recruiting and Visibility Enhancement, for World Wildlife Day, March 30th, 2022
15. MWSU Faculty Senate Executive Board and FS Secretary, 2020-2021
16. Organizer, Conference on Applied Learning (CALHE), 2021–2022
17. Program Committee Chair of the Conference on Applied Learning (CALHE), 2021–2022
18. Institutional Applied Learning Steering Committee, Member, 2021 – present
19. Social Media and Public Relations Director, Department of Biology, 2021 – present

20. **Chair, Departmental Tenure and Promotion Committee**, for Dr. Aracely Newton, 2021–present
21. **MO-Rise, Career Networking Event Contributor**, 2019–present
22. **MWSU Faculty Senator (elected), Liaison for the Grievance Committee**, 2019 – 2021
23. **GO-Zoom Recruitment Showcase Host and Panelist**, 2020–present
24. **Presidential Speakers Team, Member**, 2019 – present
25. **Steering Committee and Secretary, Center for Teaching and Learning (CTL), MWSU**, 2019 – 2022
26. **Committee Member, the John Rushing Teaching and Research Prairie, MWSU**, 2018–present
27. **Chair, Center for Teaching and Learning (CTL), MWSU – Fall Programming Committee**, 2018- 2019
28. **Recruitment Committee Member, Department of Biology, MWSU**, 2019–present
29. **Member, General Studies Assessment Scoring Committee**, 2019 - present
30. **Partnership for Undergraduate Lifesciences Education (PULSE, NSF) Workshop**, MWSU Biology representative, DuBois, NE, July 17, 2019
31. **Panelist, Griffon Edge – freshman orientation, MWSU**, 2019 - present
32. **Chair, Subcommittee**, Undergraduate Curriculum Committee, 2018
33. **Committee Member, Strategic Planning - Programs – MWSU**, 2018
34. **Academic Advisor to the Molecular Biology and Biochemistry Program**, 2018–present
35. **MWSU Departmental Showcase Presenter**, 2018–present
36. **Panelist, Griffon Edge – freshman orientation, MWSU**, 2018
37. **Chair, Open House Showcase**, Department of Biology, 2018
38. **Secretary**, Undergraduate Curriculum Committee, Subcommittee C, 2017
39. **Faculty Advisor** to the Alpha Delta Gamma (ADG) Sorority, 2016 - 2020
40. **Chair, Women in Science Coordinator**, Women's History Month at MWSU – 2016 – 2020
41. **Committee Member & Liaison**, Women in Science and Mathematics institutional committee – 2016–present
42. **Organizer & Presenter, College for Kids, Science and Science Careers (MWSU – LAS) – Humboldt Elementary**, October 28, 2016.
43. **Contributor**, MWSU Foundation Appreciation Gala, 2015–present
44. **Committee Member**, Department of Biology Natural History Collection – since 2015
45. **Committee Member**, Women's History Month at MWSU – 2015–present
46. **Guest Speaker**, Women's History Month at MWSU – 2015
47. **Academic Co-Advisor to the Wildlife Conservation and Management Program**, 2015–present
48. **Committee Member**, Biology Activity Organizing Faculty Team - CALHE 2015
49. **Chair**, Academic Standards and Regulations Committee, MWSU, 2014 – 2016
50. **Member**, Undergraduate Curriculum Committee, Subcommittee C, 2014 – 2019
51. **Honors Program Contributor**, HON 395 Honors Colloquium Development, 2014 - present
52. **Member**, Academic Standards and Regulations Committee, MWSU, 2013–2014
53. **Member**, Search Committee, Plant Systematics position, MWSU, 2014 and 2016
54. **Faculty reviewer, Science**, of the Missouri General Education Assessment (MoGEA) test, 2014
55. **Invited speaker**, MWSU Student Chapter of the Wildlife Society, Awards Banquet, 2014
56. **Leo Galloway Herbarium Coordinator & Co-Curator**, Great Plains Herbarium Network, 2013–present
57. **Faculty Mentor**, Annual Reiss Biological Station Field Trip for Biology Department Students - 2013–present
58. **Co-advisor**, Tri-Beta Biological Honors Society, 2012 – 2020
59. **Member**, Principles of Biology – Biology for non-majors departmental committee, 2012 – 2017
60. **Greenhouse Manager** - Biology Department, 2012–present
61. **Faculty Advisor** to 40 biology majors/semester – since 2012

B) Professional Service and Leadership

Professional Affiliations

American Society of Plant Biologists (ASPB)

Ecological Society of America (ESA)
Missouri Academy of Science (MAS)

Director/ Chair/ Committee Member/Panelist

- 1) **Chair, Primarily Undergraduate Institutions Section of the American Society of Plant Biologists, ASPB-PUI, 2025–2026.**
- 2) **American Society of Plant Biologists, Council Member, PUI Section Representative, 2026**
- 3) **Steering Committee Member, Primarily Undergraduate Institutions Section of the American Society of Plant Biologists, ASPB-PUI, 2024–2028.**
- 4) **Primarily Undergraduate Institution (PUI) Faculty Professional Development Workshop - Harnessing Artificial Intelligence (AI) to advance research productivity and integrate research-based teaching at PUIs, American Society of Plant Biologists (ASPB), 2026**
- 5) **Work smarter, not harder - time mastery techniques to maximize your plant science research productivity, Workshop Presenter and Organizer, Plant Biology Meeting, 2025**
- 6) **How to establish and maintain a successful research agenda at a PUI?, Invited Panelist Presenter, Plant Biology Meeting, 2024**
- 7) **Invited Career Mentor, American Society of Plant Biologists, Plant Biology 2023**
- 8) **How to Build a Successful Research Program at a Primarily Undergraduate Institution - Workgroup, American Society of Plant Biologists (ASPB-PUI), Plant Biology 2022**
- 9) **Invited Career Panelist, American Society of Plant Biologists (ASPB-PUI), Plant Biology 2021**
- 10) **Session Chair for the Plants and Climate Change (Sessions I and II) at the Ecological Society of America Meeting, 2021**
- 11) **Public Relations (PR), PUI section, American Society of Plant Biologists (ASPB-PUI) – 2017-2021**
- 12) **Volunteer, Career advisor, Plant Biology Meeting, 2017 - present**
- 13) **Session Chair, Ecological Society of America (ESA) Meeting – Chaired the “Aquatic Ecology” half-day session, Fort Lauderdale, FL, August 2016**
- 14) **Career Chats, Careers at PUI institutions, invited workshop panelist, Plant Biology Meeting, 2015**
- 15) **Session Chair, Conference on Applied Learning in Higher Education, 2015**
- 16) **Secretary, Ecological Society of America (ESA) – Primarily Undergraduate Institutions (PUI) section, 2015–2021**
- 17) **Webmaster, Ecological Society of America (ESA) – Primarily Undergraduate Institutions (PUI) section, 2014–present**
- 18) **Career Advisor, American Society of Plant Biologists (ASPB) - 2015**
- 19) **Session Chair, Ecological Society of America (ESA) Meeting – Chaired the “Plants and Climate Change I” half-day session, Sacramento, CA, August 2014**
- 20) **Session Chair, 9th Applied Learning in Higher Education Conference (CALHE) – Chaired a “Student Session,” March, 2014**
- 21) **Buell Braun Award Judge, Ecological Society of America (ESA) Meeting, Sacramento, CA, August 2014**
- 22) **Volunteer, Plant Biology Meeting, Portland, OR, July 2014**

Editor/Guest Editor

- **Agronomy (MDPI), Special Issue, “Cellular Signaling Networks in Crop Stress Responses”, 2026 - ongoing**
- **Discover Plants (Springer Nature, ISSN 3005–1207), Collections: Plant Secondary Metabolism, 2026**
- **Agronomy (MDPI) – Editor, 2024–present**
- **Horticulture (MDPI), Special Issue, “Abiotic Stress Responses of Plants” 2018–2019**
- **Forests (MDPI), 2018–present**

Editorial Board

- **Frontiers in Plant Science, Abiotic Stress Section, Associate Editor**, 2025–present
- **Discover Plants (Springer Nature, ISSN 3005–1207)**, 2025–present
- **Agronomy (MDPI)**, 2024 - present
- **Frontiers in Plant Science, Ed. Board**, 2023 – present
- **Biology (MDPI)**, 2023 – present

Reviewer Board

Sustainability (MDPI), 2019–present

Reviewer

Regular: Functional Plant Biology (over 20 papers), Atmospheric Environment (over 10 papers), Plant Cell and Environment (over 10 papers); Plant Biology (over 5 papers), Conservation Physiology (over 5 papers), Plant Physiology (over 5 papers), International Journal of Molecular Sciences (MDPI) (over 35 papers), Plants (over 10 papers), Sustainability (MDPI), Agriculture (MDPI) (over 5 papers); Molecules (MDPI) (over 5 papers), Horticulturae (MDPI) (over 5 papers), Agronomy (MDPI) (over 5 papers), Antioxidants (MDPI) (over 5 papers), Biology (over 5 papers) (Regular MDPI journals reviewer since 2015)

Ad hoc (less than four papers): European Journal of Forest Research, Transactions of the Missouri Academy of Sciences, Plant Biosystems, Planta, Annales Botanici Fennici, Atmosphere (MDPI), Environments (MDPI), Genetics (MDPI), Education (MDPI), International Journal of Environmental Research and Public Health, Planta (ASPB).

Online Resource Reviews: reviewed the Revel Platform (Pearson Education) for General Biology (2016)

Textbook Reviews: reviewed four chapters of the “Biology for the informed citizen” textbook, authored by Donna Bozzone and Douglas Green, published by the Oxford University Press (2014)

Panel member/Ad hoc reviewer: NSF, 2011–present; USDA – AFRI, from 2022 – present

C) Community Service and Leadership

- 1) **Master Naturalists – Core Training and Education Series**, 2023–present.
- 2) **Tiny Tots Town – Biology Program Coordinator and Plant Science Demonstrator**, St. Joseph, MO, 2012–present; annual community outreach event.
- 3) **Super Science Saturday – Biology Program Coordinator/Director**, Missouri Western State University and St. Joseph Museum, St. Joseph, MO, 2012–present; annual STEM outreach event, including virtual programming in 2021.
- 4) **Grand River/Northwest Missouri Prairie Days – Guest Speaker and Plant Biology/Pollinator Exhibit Coordinator**, 2015–present; annual outreach event in collaboration with regional conservation organizations.
- 5) **Plant Science Specialist Consultant, Sustainable Environment Advisory Committee, City of St. Joseph**, MO, 2018–present.
- 6) **Missouri Academy of Science – Junior High School Division Committee Member**, 2013–present.
- 7) **Missouri Junior Academy of Science (MJAS) – District Director and Award Committee Member**, 2012–present.
- 8) **Discover Science! Summer Day Camp – Biology Director**, 2014–2021; including advanced inquiry-based molecular biology and biochemistry programming.

- 9) **Science Fair Judge**, regional and school science fairs, 2000–present; including West Platte Science Fair (2012–present), MARSEF (2013–2020), GEMS, and Stewartsville Science Fair.
- 10) **Mid-America Regional Science and Engineering Fair (MARSEF) – Director, Judge, and Panelist**, 2015–2020.
- 11) **Sound of Speed Airshow – Science/Biology Program Director and Organizer**, St. Joseph, MO, 2018 and 2021.
- 12) **Dunn Ranch Prairie Days – Plant Biology Activity Director**, Dunn Ranch, MO, 2021.
- 13) **Planet Party – Biology Exhibit Director**, St. Joseph, MO, 2021.
- 14) **Mid-Buchanan High School Outreach Program – Science Program Exhibitor**, St. Joseph, MO, 2021.
- 15) **Northland Career Center Visit – Science Program Director**, St. Joseph, MO, 2021.
- 16) **Western Foundation Donor Gala – Exhibitor and Mentor**, 2022.
- 17) **Missouri Western State University Open House – Science Demonstrator**, 2022.
- 18) **MORise Science and Industry Networking Event – Biology Representative**, 2023.
- 19) **Griffon Recruitment Showcase – Biology Representative**, 2023.
- 20) **Tree Expo – Plant Biology Exhibit**, St. Joseph, MO, 2019.
- 21) **Local and Regional STEM High School Day – Plant Biology Exhibit**, 2019.
- 22) **Girl Scout Camp Day – Biology Program Organizer**, Missouri Western State University, 2018.
- 23) **Plants and Pollinators Workshop – Organizer and Guest Speaker**, University of Missouri Extension Master Gardeners and Master Naturalists, 2015.
- 24) **Science and Society: The Science and Politics of Climate Change – Guest Speaker**, public seminar, St. Joseph, MO, 2015.
- 25) **Briarcliff Elementary School Visit – Biology Demonstration Coordinator**, 2014.
- 26) **Kids as Scientists – Plant Biology Activity Coordinator**, 2012.
- 27) **Texas A&M University STEM Outreach – Workshop Coordinator**, science projects, workshops, field and laboratory demonstrations for K–12 teachers and students and Sam Houston National Forest personnel, 2010–2013.
- 28) **Texas A&M University Graduate Teaching Academy – Volunteer**, 2011–2012.
- 29) **Texas A&M University Student Research Week – In-Field Science Judge**, 2011.
- 30) **USDA Laboratory Outreach – Coordinator**, laboratory demonstrations and guided visits for visiting university students and faculty, 2007–2010.
- 31) **Biology Journal Club and Seminar Series – Coordinator**, Biological Research Center, Szeged, HU, 2000–2007.

PROFESSIONAL DEVELOPMENT and CERTIFICATIONS

- 1) **Cartographic Design and Visualization, Graduate Course**, 3 credits, Northwest Missouri State University, (June 22, 2026 - August 7, 2026).
- 2) **Business Location Analytics, Graduate Course**, 3 credits, Northwest Missouri State University, (May 11, 2026 – June 19, 2026).
- 3) **Fundamentals of Geostatistics, Graduate Course**, 3 credits, Northwest Missouri State University, (June 25, 2025 - August 8, 2025).
- 4) **Digital Image Processing, Graduate Course**, 3 credits, Northwest Missouri State University, (May 7, 2025 - June 22, 2025).
- 5) **Plant Cell**, multiple webinar trainings in plant science, 2025
- 6) **The Plant Atlas**, multiple webinar trainings in plant science, 2025
- 7) **Proficiency in Remote Sensing - NASA ARSET Certifications** (10 certifications completed), 2025
- 8) **Geographic Information Sciences (GIS) – Esri Certifications** (30 certifications completed), 2024
- 9) **Enhancing Teaching Skills for Plant Scientists**, Webinar, Plantae, Sept. 19, 2023
- 10) **Successful grantmanship at PUIs**, Plant Biology 2023, Aug. 5–9, Savannah, GA

- 11) **LICOR Environmental Webinar**, New Direct and Economical Evapotranspiration Measurements, July 19, 2023
- 12) **National Science Foundation (NSF) Virtual Grants Conference**, June 5–8, 2023
- 13) **Setting SMART Goals**, Webinar, Plantae, April 21, 2023
- 14) **Education Summit**, Course Hero, July 2022
- 15) **Higher Education: Business and Leadership**, by Fierce Education, June 30th, 2022
- 16) **Transformative Learning for the Future**, Ruthledge Taylor & Francis Education Webinar series, June 21st, 2022
- 17) **Spring 2022 National Science Foundation (NSF) Grants Conference**, June 6–10, 2022
- 18) **REMOTE – The Connected Faculty Summit: Maximizing Success for Learners**, earned professional development Badge, Arizona State University, 2022
- 19) **Missouri Hunter Education Certification, Missouri Department of Conservation**, St. Joseph, MO, April 15th, 2022
- 20) **REMOTE – The Connected Faculty Summit**, earned professional development Badge, Arizona State University, 2021
- 21) **Higher Education: The Connected Campus**, Fierce Education, August, 2021
- 22) **Global Positioning Systems, II & III** Missouri Western State University and the Western Institute, Certified User, Saint Joseph, MO, 2020
- 23) **Agilent – “Eliminate the Fear Factor” – GC and LC chromatography workshop**, June 18–19, Olathe, KS
- 24) **Partnership for Undergraduate Lifesciences Education (PULSE, NSF) Workshop**, MWSU representative, DuBois, NE, July 17, 2019
- 25) **Primarily Undergraduate Institutions Workshop**, American Society of Plant Biologists (ASPB), Honolulu, HI – June 24, 2017, and American Society of Plant Biologists (ASPB), Montreal, Canada, 2018
- 26) **Six-Sigma White Belt Certificate (IASSC)** – certificate in quality control, 2016
- 27) **Tutorial, "Panopto,"** MWSU - August 25, 2015
- 28) **Workshop, "Federal Funding,"** Ecological Society of America (ESA), Baltimore, MD - August 13, 2015
- 29) **Workshop, "Kill the PowerPoint: Exploring Teaching Moments Via Impromptu Chalk Talks"** Ecological Society of America (ESA), Baltimore, MD - August 13, 2015
- 30) **Workshop, "Build Your Career with the Plant Physiology and Plant Cell,"** American Society of Plant Biologists (ASPB), Minneapolis, MN - July 27, 2015
- 31) **Workshop, "Education Workshop: Lessons on How to Study – Evidence from Cognitive Psychology"** American Society of Plant Biologists (ASPB), Minneapolis, MN - July 28, 2015
- 32) **Workshop, "Plant Biology Research at Primarily Undergraduate Institutions"** American Society of Plant Biologists (ASPB), Minneapolis, MN - July 25, 2015
- 33) **Great Plains Herbarium Network web interface training workshop**, Botanical Symposium, Saint Louis, MO, 2013
- 34) **“Writing and Designing NSF Proposals” Certificate**, NSF Grant Training Center, Kansas City, MO, 2013
- 35) **Global Positioning Systems**, Missouri Western State University and the Western Institute Certified User, Saint Joseph, MO, 2013
- 36) **Graduate Teaching Academy Certificate**, Texas A&M University, College Station, TX, 2011
- 37) **Radiation Safety Course** – Radiation Physics and Engineering, Certification, Phoenix, AZ, 2008
- 38) **“Techniques in plant membrane proteomics” Training School**, COST- EC program, Munich, Germany, 2007
- 39) **“Gas exchange technology,”** Eco-Search and LI-COR Biosciences, Certification, Citta di Castello, Italy, 2007
- 40) **“Stable Isotopes, Plant VOCs and Secondary Organic Aerosols in Biosphere-Atmosphere Carbon Exchange”** ISONET -VOCBAS Short Course, Certification, Kuopio, Finland, 2006
- 41) **Proton Transfer Reaction-MS Training Courses (II&III)**, Certification, Obergurgl, Austria, 2005 and 2006
- 42) **ISONET Summer-School (II)**, Benediktbeuren, Germany, 2005
- 43) **“Biogenic Volatile Organic Compounds in the Plant-Environment Interactions” (I)** VOCBAS Summer School, Chemical Ecology Certification, Pieve Tesino, Italy, 2004

- 44) **"Solid-Phase Micro-Extraction"** Sigma-Aldrich and Supelco, Certification, Rome, Italy, 2004
- 45) **International Advanced Course - Chemistry and Biochemistry of Antioxidants**, Wageningen, The Netherlands, 2002
- 46) **Bioinformatics Course**, Polish Academy of Sciences, Certification, Warsaw, Poland, 2002

SELECTED MEDIA PRESENCE

- **News-Press NOW**, "The Science Behind the Lively Colors of Fall," interview, September 17, 2025.
- **KQ2 News**, "Climate Trends Causing Allergy Season to Become Earlier, Longer, and Worse," interview, March 29, 2023.
- **Missouri Western State University, Points of Pride/Griffon Weekly**, "Dr. Csengele Barta Publishes Two Papers," December 2022.
- **Griffon Weekly**, features on international plant science collaboration and recognition of undergraduate research with Alyka Zahnd by the American Society of Plant Biologists, December 2021.
- **Griffon Weekly**, "Prairie Pollinator Attracting Boxes," May 2021.
- **Savannah Reporter**, "Plant Wars," June 21, 2021.
- **Saint Joseph News-Press, NorthwestMOInfo, and Griffon Weekly**, coverage of MWSU undergraduate student research fellowship, May–June 2021.
- **Griffon News**, feature on Barta receiving the American Society of Plant Biologists Primarily Undergraduate Institution Award, 2020.
- **Griffon Yearbook**, "Sowing the Seeds of Success: Dr. Csengele Barta," by Christian Sarna, 2020.
- **Saint Joseph News-Press**, "Expo Educates on the Importance of Trees," November 10, 2019.
- **MWSU Magazine**, "Biology Student Selected as Research Fellow," feature on research with undergraduate researcher Rachael Prawitz, Winter 2019.
- **Griffon Yearbook**, "More to a Pin Oak Than Meets the Microscope," feature on the Barta research laboratory and undergraduate research team, 2019.
- **American Society of Plant Biologists, ASPB News**, feature on the 2018 Summer Undergraduate Research Fellowship awarded to Rachael Prawitz, mentored by Csengele Barta, July/August 2018.
- **Missouri Western Magazine**, feature on undergraduate research and the ASPB Summer Undergraduate Research Fellowship, 2018–2019.
- **KQ2 TV, FOX 26 KNPN, and Saint Joseph News-Press**, interviews and features on fall leaf coloration, the Missouri Junior Academy of Science, and plant science, 2016.
- **KQ2 TV, FOX 26 KNPN, Saint Joseph News-Press, and Missouri Western Magazine**, interviews and features on the Discover Science! Summer Day Camp, 2014.
- **Saint Joseph News-Press**, coverage of Plant Biology activities at Super Science Saturday, 2013–2014.
- **Missouri Western State University, Points of Pride**, multiple faculty, research, and outreach features, 2013–2014.
- **American Society of Plant Biologists, ASPB News**, "ASPB's 2013 Women's Young Investigator Travel Award Winners Announced," *ASPB News* 40(3), May/June 2013.