

## RESEARCH INTEREST

PhD Candidate in Biology with research experience in integrated analysis of plant development, physiological responses, and hormone-stress interactions. Interested in pursuing postdoctoral research.

## EDUCATION

PhD in Biology - Auburn University, AL, USA	2022 - present
Master of Science in Botany - Jamia Hamdard, India	2018 - 20
Bachelor of Science (Honors) Botany - Zakir Husain Delhi College, University of Delhi, India	2015 - 18

## RESEARCH

Graduate Research Assistant - Department of Biological Sciences, AU, AL, USA Cytokinin in delaying salt-induced leaf senescence and regulation of chloroplast function in <i>Arabidopsis thaliana</i>	2022 - present
Master's Research - Department of Botany, Jamia Hamdard, India <u>Dissertation Title</u> : Exogenously-sourced GABA modulates wheat growth and physiological responses under salt stress	2018-20
Undergraduate Summer Internship – Division of Agricultural Chemicals, Indian Agricultural Research Institute, India <u>Project Title</u> : Study and extraction of curcumin from turmeric ( <i>Curcuma longa</i> ) and observing change under various pH conditions	May - Aug 2016

## PUBLICATIONS ([Google Scholar](#) | Citations: 387)

\*mentored undergraduates

**Khanna RR**, Hasannin O, Thennakoon M, Buchheit A\*, Petřík I, Strnad M, Novák O, Černý M, & Rashotte AM (2025). *trans*-Zeatin N-glucosides Can Delay Salt Accelerated Leaf Senescence in *Arabidopsis thaliana*. *Plant Physiology and Biochemistry*, 110101. DOI: <https://doi.org/10.1016/j.plaphy.2025.110101>

Kumari S, Kaur P, Mahajan M, Nayak SR, **Khanna RR**, Rehman MT, AlAjmi MF, Khan MIR (2025).  $\gamma$ -aminobutyric acid (GABA) supplementation modulates phosphorus retention, production of carbon metabolites and defense metabolism under arsenic toxicity in wheat. *Plant Science*, 356, 112504. DOI: <https://doi.org/10.1016/j.plantsci.2025.112504>

Yocca AE, Akinyuwa M, Bailey N, ..., **Khanna RR**, ... & Harkess AE (2024). A chromosome-scale assembly for dAnjou pear. *G3 Genes|Genomes|Genetics*. DOI:

<https://doi.org/10.1093/g3journal/jkae003>. #Cover image featured on this issue

Khan MIR, Kumari S, Nazir F, **Khanna RR**, Gupta R, & Chhillar H (2023). Defensive Role of Plant Hormones in Advancing Abiotic Stress-Resistant Rice Plants. *Rice Science*, 30(1), 15-35. DOI:

<https://doi.org/10.1016/j.rsci.2022.08.002>

Kumari S, **Khanna RR**, Nazir F, Albaqami M, Chhillar H, Wahid I, & Khan MIR (2022). Bio-synthesized nanoparticles in developing plant abiotic stress resilience: a new boon for sustainable approach.

*International Journal of Molecular Sciences*, 23(8), 4452. DOI: <https://doi.org/10.3390/ijms23084452>

Kumari S, Chhillar H, Chopra P, **Khanna RR**, Khan MIR (2021). Potassium: A track to develop salinity tolerant plants. *Plant Physiology and Biochemistry*, 167, 1011-1023. DOI:

<https://doi.org/10.1016/j.plaphy.2021.09.031>

**Khanna RR**, Jahan B, Iqbal N, Khan NA, AlAjmi MF, Rehman MT, & Khan MIR (2021). GABA reverses salt-inhibited photosynthetic and growth responses through its influence on NO-mediated nitrogen-sulfur assimilation and antioxidant system in wheat. *Journal of Biotechnology*, 325, 73-82. DOI:

<https://doi.org/10.1016/j.jbiotec.2020.11.015>

### **Submitted**

Johnston G<sup>1</sup>, Hasannin O<sup>1</sup>, **Khanna RR**<sup>1</sup>, Rashotte AM, & Argueso C (Accepted). Cytokinin root growth and leaf senescence assays for physiological observations in *Arabidopsis thaliana*. *Methods in Molecular Biology*. <sup>1</sup>equally contributed authors

Thennakoon M, **Khanna RR**, & Rashotte AM (under review). The cytokinin cis-Zeatin delays leaf senescence in tomato under salt stress. *Journal of Plant Growth Regulation*.

### **FELLOWSHIPS/GRANTS**

Alabama Agricultural Experiment Station, Professional Enhancement for Emerging Researchers (PEER). Project Title: *An integrative approach towards improving tomato development by utilizing cytokinin as a tool for sugar reallocation*. (Awarded \$5000 to pursue independent research project) Nov 2025

Joint CSIR-UGC NET-Junior research fellowship - Life Sciences. Awarded \$24,705 to pursue PhD research in research institutes/universities in India (award not availed) Feb 2021

Narendra Singh Graduate Student Research Award (Department of Biological Sciences, AU). (Awarded \$500 to pursue independent research project) Sept 2023

### **AWARDS**

Henry Daniell International Scholar Award - Graduate Student at *Southern Section* – Mar 2023  
*American Society of Plant Biologists*

Graduate Student Oral Presentation Award – 1<sup>st</sup> Place at *Southern Section* – Mar 2024  
*American Society of Plant Biologists*

*Annual COSAM 3 Minute Thesis Competition (3MT)* – 1<sup>st</sup> Place Mar 2025

University-wide M.Sc. Botany rank 1 holder Oct 2020

Silver-Elite Certification in “Bio-Informatics: Algorithms and Applications” from Indian Institute of Technology Madras Apr 2019

### **Travel Awards**

COSAM Graduate Student Travel Award June 2025

*International Conference on Arabidopsis Research*, San Diego, CA – Travel Award July 2024

## **PRESENTATIONS**

\*mentored undergraduates

### **Regional and University**

**Khanna RR**, Rashotte AM (2025) Plant Hormone Cytokinin Regulates Chloroplast Function and Leaf Senescence in *Arabidopsis thaliana*. *AU Research Symposium*. (Oral presentation)

Giglio B\*, Buchheit A\*, **Khanna RR**, & Rashotte AM (2025) Regulation of SWEET Sugar Transporters by Cytokinin and the Role in Source-Sink Dynamics. *AU Research Symposium*. (Poster)

**Khanna RR** (2025) Hormonal Mechanisms for Improving Plant Productivity. *Annual COSAM 3 Minute Thesis Competition (3MT)*

**Khanna RR**, Hasannin O, Thennakoon M, Černý M, Rashotte AM (2024) Salt-Stress Accelerated Leaf Senescence is Delayed by modified *trans*-Zeatin type Cytokinin forms in *Arabidopsis thaliana*. *Annual Meeting of the Southern Section-American Society of Plant Biologists*, Dauphin Island, AL. (Oral presentation)

**Khanna, RR**, Rashotte, AM (2023) *trans*-Zeatin N-Glucosides regulate salt-induced leaf senescence in *Arabidopsis thaliana*. *Annual Meeting of the Southern Section-American Society of Plant Biologists*, Fayetteville, AR. (Oral presentation)

Thennakoon M, **Khanna RR**, Hasannin O, Rashotte AM (2023) Effect of Cytokinin in tomato stress response and delay in leaf senescence. *Annual Meeting of the American Society of Plant Biologists – Southern Section*, Fayetteville, AR. (Poster)

**Khanna, R.R.**, & Rashotte, A.M. (2022) Cytokinin N-Glucosides reverse salt-mediated photosynthetic repression in *Arabidopsis thaliana*. *Annual Meeting of the Southern Section-American Society of Plant Biologists*, Birmingham, AL. (Poster)

### **National and International**

**Khanna RR**, Buchheit A\*, Giglio B\*, Rashotte AM (2025) Cytokinin Antisenescence is Mediated by CHLOROPLAST IMPORT APPARATUS2 in *Arabidopsis thaliana*. *25<sup>th</sup> International Plant Growth Substances Association*, Fort Collins, CO. (Poster)

Thennakoon M, **Khanna RR**, Rashotte AM (2025) Weighted Gene Co-expression Network Analysis reveals the cis-Zeatin regulation in leaf senescence under salt stress. *25<sup>th</sup> International Plant Growth Substances Association Meeting*, Fort Collins, CO. (Poster)

Rashotte AM, Hasannin O, **Khanna RR**, Thennakoon M, Petřík I, Strnad M, Novák O, Černý M (2025) A Multi-omics Approach to Determining the Role of Cytokinin in Delaying Leaf Senescence. *25<sup>th</sup> International Plant Growth Substances Association Meeting*, Fort Collins, CO. (Poster)

**Khanna RR**, Buchheit A\*, Hasannin O, Thennakoon M, Černý M, Rashotte AM (2024) *trans*-Zeatin and *trans*-Zeatin N-Glucosides Regulate Cytokinin Signaling and Delay Salt-Stress Accelerated Leaf Senescence. *34<sup>th</sup> International Conference on Arabidopsis Research*, San Diego, CA. (Poster)

Hasannin O, **Khanna RR**, Černý M, Rashotte AM (2024) Identification of Dual Phase molecular regulation of leaf senescence by cytokinin isoforms. *34<sup>th</sup> International Conference on Arabidopsis Research*, San Diego, CA. (Poster)

Thennakoon M, **Khanna RR**, Hasannin O, Rashotte AM (2024) Physiological and transcriptomic effects of cytokinin in delaying salt stressed leaf senescence in *Arabidopsis* and tomato. *34<sup>th</sup> International Conference on Arabidopsis Research*, San Diego, CA (Poster)

**Khanna RR**, Hasannin O, Thennakoon M, Rashotte AM (2023) *trans*-Zeatin N-Glucosides bring unique changes to transcriptome profile of senescing leaves of *Arabidopsis thaliana* under salt-exposure. *Annual Meeting of the American Society of Plant Biologists*, Savannah, GA. (Poster)

Hasannin O, **Khanna RR**, Rashotte AM (2023) Time-Dependent Dynamics of Cytokinin Isoforms in Leaf Senescence: A Comparative Study between Base and Conjugated Forms. *Annual Meeting of the American Society of Plant Biologists*, Savannah, GA. (Poster)

Thennakoon M, **Khanna RR**, Hasannin O, Rashotte AM (2023) Response of Cytokinin Response Factors on heat stress in *Arabidopsis thaliana* and the role of cytokinin in delaying senescence. *Annual Meeting of the American Society of Plant Biologists*, Savannah, GA. (Poster)

Rashotte AM, **Khanna RR**, Hasannin O (2023) Multiple N-conjugated forms of Cytokinins are Involved in Delaying Natural and Abiotic Stress Senescence. *33<sup>rd</sup> International Conference on Arabidopsis Research*, Chiba, Japan. (Poster)

Rashotte AM, **Khanna RR**, Hasannin O (2022) Multiple N-conjugated forms of cytokinins are involved in delaying dark-induced and abiotic-stress senescence. *Annual Meeting of the American Society of Plant Biologists*, Portland, OR. (Poster)

**Khanna RR**, Nayak SR (2019) Positives of plant-microbe interaction: Promoting plant growth and response to abiotic stress. *Annual Meeting of the Indian Science Congress Association*, Phagwara, India. (Poster)

## TEACHING

### Graduate Teaching Assistant

Plant Biology (BIOL 3101)

*Fall 2023 - present*

- Sole Lab Instructor - Leading two weekly laboratory sections focused on cell processes, genetics, anatomy, diversity, and development based experiments
- Lab report assessment testing ~40 students on weekly progress

Genetics (BIOL 3001)

*Spring 2025*

- Leading two weekly laboratory sections focused on mendelian genetics, principles of inheritance, and electronic fruit fly experiments

### Guest Lecture

Plant Biology (BIOL 3100)

*Fall 2024*

“Ethnobotany: Interaction of humans with plants” (invited lecture)

- Leading a discussion based lecture on historical perspective of crop domestication, economic and medicinal crops, and centers of crop origin.

## MENTORING

### Undergraduate researchers

Shelby Crowell

*Fall 2025 - present*

Project: Characterizing etiolation responses in chloroplast-import mutants

Peyton Hass

*Fall 2025 - present*

Project: Characterizing temporal and spatial variability of cytokinin signaling in altered chloroplast-import mutants

Brianne Giglio

*Fall 2024 – Spring 25*

Project: Identifying effects of cytokinin treatment towards source-sink dynamics and sugar transport in *Arabidopsis thaliana*

Hannah Wurzbach

*Spring 2024 – Fall 24*

Project: Characterising chloroplast-related gene expression under altered cytokinin accumulation in *Arabidopsis thaliana*

<u>Ashley Buchheit</u>	<i>Summer 2023 – Fall 24</i>
Project: Genotyping and phenotypic characterization of sugar transport mutants in <i>Arabidopsis thaliana</i>	
<u>Lukas Dill</u>	<i>Spring 2023 - Summer 23</i>
Project: Analysis of fluorescence based photosynthesis efficiency of Cytokinin-N-glucosides under stress induced leaf senescence	
<u>Lauren Weiner</u>	<i>Summer 2023 - Spring 24</i>
Project: PCR based genotyping of cytokinin-signaling members as potential targets of cytokinin-N-glucosides	

## PEER REVIEWING

### *Plant Physiology and Biochemistry*

4 research articles reviewed 2025

## POSITIONS HELD/COMMITTEES

Graduate Student Experiences panel, Tribeta Biological Honor Society and Genetics Club, AU, AL, USA	<i>Oct 2025</i>
Graduate Student Experiences panel, Department of Biological Sciences, AU, AL, USA	<i>Aug 2024</i>
Graduate student represent in DEI graduate student recruitment committee, Department of Biological Sciences, AU, AL, USA	<i>Oct 2022 - Dec 24</i>
Department of Biological Sciences Graduate Student Research Awards Committee	<i>May 2024</i>
Senator - Department of Biological Sciences Graduate Students Association, AU, AL, USA	<i>Aug 2024 - July 25</i>
Graduate Student Council Advocacy and Outreach Committee	<i>Aug 2024 - July 25</i>
First Year Experience Mentor – Graduate Student Council, AU, AL, USA	<i>Aug 2023</i>
Department of Botany Conference Organizing Committee - Undergraduate Student Member, Zakir Husain Delhi College, University of Delhi, India	<i>Apr 2016 - Jan 18</i>

## OUTREACH

Summer Science Institute: Detecting transgenic plants! Working with high school students to perform commonly used plant molecular biology techniques. AU, AL, USA	June 2022 - 25
Destination STEM: Fruit or Vegetable? Let's 'Scope' it Out! Demonstrating microscopy and differentiating fruits from vegetables to 3-5 <sup>th</sup> graders. AU, AL, USA	Oct 2022 - 24
Getting Under The Surface: Fruit, Flowers, Fun event Performing DNA isolation from fruits with 5-7 <sup>th</sup> graders. AU, AL, USA	Oct 2022

### ADDITIONAL CERTIFICATIONS

Distinguished Future Faculty, AU, AL, USA (Preparing Future Faculty program)	May 2025
Qualified GATE- Life Sciences National-level examination evaluating the subject-specific skills of candidates interested in nation-wide Master's and PhD programs, India	Mar 2020
Intellectual Property Rights: A Management Perspective (Online) - Indian Institute of Management, Bangalore, India	July - Oct 19
Bio-Informatics: Algorithms and Applications (Online) – Indian Institute of Technology, Madras, India	Jan - Apr 19

### MEDIA COVERAGE

<i>Southern Section – American Society of Plant Biologists</i> Newsletter: Graduate Student Oral Presentation Award – 1 <sup>st</sup> Place	Sept 2024
genestogenomes.org - Genetics Society of America: "Cracking the pear genome: how students helped unlock a new tool for the pear industry"	Mar 2024
<i>Southern Section – American Society of Plant Biologists</i> Newsletter: Henry Daniell International Scholar Award - Graduate Student	Oct 2023

### SCIENTIFIC WORKSHOPS ORGANISED

National Conference on Challenges and Strategies to Improve Crop Productivity in Changing Environment: An Integrated Approach - Department of Botany, Zakir Husain Delhi College, University of Delhi, India. (member of organizing committee)	Jan 2018
National Conference on Pharmacognosy: Scope of Phytochemically Unexplored Medicinal Plants - Department of Botany, Zakir Husain Delhi College, University of Delhi, India. (member of organizing committee)	Jan 2017

April 2016

National Symposium on Biotechnology in Crop Improvement: Prospects and Challenges - Zakir Husain Delhi College, University of Delhi, India. (member of organizing committee)

## **SKILLS**

### **Molecular and wet-lab techniques**

DNA/RNA isolation, RT-PCR, agarose/polyacrylamide gel electrophoresis, image-based phenotyping, fluorescence microscopy, senescence assay, plasmid prep.

### **Bioinformatics**

RNA-Seq analysis for DGE, WGCNA, transcriptome assembly.  
R, bash, Adobe Illustrator.

## **REFERENCE**

### **Aaron M. Rashotte**

PhD Committee Chair

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Department of Biological Sciences

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Auburn, AL, USA

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