

Amir A. Khoddamzadeh, Ph.D.

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Summary

Dr. Khoddamzadeh's "[Sustainable and Conservation Horticulture Lab](#)" broadly covers how to integrate the science and the stakeholders need to address the real challenges associated with climate change and the species endangerment and adaptation. This multidisciplinary research addresses a range of topics including *in-vitro* propagation (tissue culture) and gene-banking (cryopreservation) of the endangered and medicinal plants, seed technology and biotechnology assessments, and optical non-destructive handheld sensor technology for sustainable water and fertilizer management of horticultural crops (fruits, vegetables, ornamentals, and flowers) which is the very valuable practice for precision management decision making in botanic gardens, farms, and nursery production. He serves as the Undergraduate Program Director of the Earth and Environment Department.

Professional Experience

Florida International University, Department of Earth and Environment, 11200 SW 8th St. Miami, FL 33199.

<i>Assistant Professor</i>	Fall 2022 - present.
<i>Associate Teaching Professor</i>	Fall 2021- Fall 2022
<i>Assistant Teaching Professor</i>	Fall 2015 - Spring 2021
<i>Undergraduate Program Director</i>	Fall 2019 – present.
Founder: Dr. Horticulture iPhone application (FIU StartUP).	Spring 2016 – present.

Affiliation: [Agroecology Program](#) and [International Center for Tropical Botany – Institute of Environment](#), an FIU Preeminent Program.

Oklahoma State University, Department of Horticulture and Landscape Architecture, 358 Agricultural Hall Stillwater, OK 74078.

Research Scholar, 2013-2015

Ferdowsi University of Mashhad (FUM), Department of Plant Production Technology, Faculty of Agriculture and Natural Resources, Mashhad.

Assistant Professor, 2012-2013

Founder *and Team lead*, 2011-2013. Rose Biotech StartUp, Technology Park, FUM.

Agricultural Biotechnology Research Institute of Iran, East and North East Branch, Mashhad.

Assistant Professor, March 2011-August 2012

Kheradgarayan Motahar Institute of Higher Education, Mashhad.

Visiting Assistant Professor, 2011-February 2012

University Putra Malaysia, Selangor, Malaysia.
TA and RA, July. 2007- February. 2011

Ph.D. - Agriculture Biotechnology (Conservation Horticulture)
Dissertation title: Induction of protocorm-like bodies (PLBs), synthetic seed production, and cryopreservation in *Phalaenopsis bellina* (Rchb.f.) Christenson.

Seed and Plant Research Improvement Institute - Oilseed Crops and Seed & Plant Certification & Registration Institute, Karaj, Iran.
Internship, RA, 2004-2007

MSc. - Agricultural Engineering -Plant Production (Ecophysiology)
Thesis: Study of drought stress ecophysiological effects on seed and plant characteristics of soybean *Glycine max* (L.) [Merr] cultivars and lines.

Award

Engagement Award	2019
College of Arts, Sciences, and Education, Florida International University	
Prestigious Recognition Award - Garden Club	2017
College of Arts, Sciences, and Education, Florida International University	
Certification of Appreciation	2017
Council for Student Organizations, Florida International University	
Early Career Young Faculty Award – 1st Place	2015
American Society for Horticultural Science	

Publication

*: Corresponding author, U: Undergraduate Student Project

<https://scholar.google.com.my/citations?user=6nO5OPEAAAAJ&hl=en>

^URodriguz, A., Freidenreich, A., Jayachandran, K., Vendrame, W and ***Khoddamzadeh, A.A.** Using Handheld Optical Sensors for Sustainable Fertilizer Management of *Euphorbia pulcherrima* 'Bravo Bright Red'. Under review.

Riera, D. and ***Khoddamzadeh, A.A.** Orchid Synthetic Seed: Commercial and Conservation Applications. Under review.

Dhar, S., Vandenburg, K., Perez, V., ^UDuarte, E., Priestap, H., Mathee, K. and ***Khoddamzadeh, A.A.** L-arginine regulates *Pseudomonas aeruginosa* pathogenesis through quorum sensing. Under review. Microbiology.

***Khoddamzadeh, A.A.** and Dunn, B.L. Embryo Rescue via Artificial Seed Technique and Long-Term Preservation of Zephyranthes. Under Review. Horticulture.

^GGarcia, E., Downing, J. and. ***Khoddamzadeh, A.A.** 2022. Characterization of mycorrhiza associating with *Encyclia Tampensis* and its effect on plant health. Submitted to Mycorrhiza.

^GMullin, A., Downing, J. Souza Costa, B and ***Khoddamzadeh, A.A.** 2022. *In-Vitro* Micropropagation and acclimatization of endangered native orchids. HORTSCIENCE 57(9):1159–1166. 2022. <https://doi.org/10.21273/HORTSCI16672-22>.

^UDe Stefano, D., Downing, J. and ***Khoddamzadeh, A.A.** 2022. Application of Organic Amendments in Tissue Culture of South Floridian Endangered Orchids. American Journal of Plant Sciences. 13, 380-393. <https://doi.org/10.4236/ajps.2022.133023>.

Balilashaki, K., Tam Ho, T, Niu, S.C., Cardoso, J.C., Zotz, G., **Khoddamzadeh, A.A.** and Vahedi, M. 2021. Biochemical, cellular and molecular aspects of Cymbidium orchids: an ecological and economic overview. Accepted. Acta Physiologiae Plantarum. 44, 24. <https://doi.org/10.1007/s11738-022-03359-w>.

Kaviani, B., Almasi, A., Sedaghatoor, S and **Khoddamzadeh, A.A.** 2021. A protocol for fast *in vitro* propagation of *Impatiens hawkeri* Bull. cv. Sweeties Blue Star, an important ornamental-cover species. Rodriguésia. 72: e02562019. 2021 DOI: <http://dx.doi.org/10.1590/2175-7860202172053>.

Fallahi, E., **Khoddamzadeh, A.A.**, Fallahi, B. and Mahdavi, S. 2020. Branched Secondary Alcohol Ethoxylate, Ammonium Thiosulfate, Calcium polysulfides- thiosulfate, and Fish Oil Effects on Blossom Thinning, Fruit Set and Quality of Peaches and Nectarines. American Journal of Plant Sciences. 11(12): 1918-1933.

Balilashaki, K., Moradi, S., Vahedi, M, and **Khoddamzadeh, A.A.** 2020. A molecular perspective on orchid development. The Journal of Horticultural Science & Biotechnology. 10.1080/14620316.2020.1727782.

Freidenreich, A., ^UBarraza, G., Jayachandran, K. and ***Khoddamzadeh, A.A.** 2019. Precision Agriculture Application for Sustainable Nitrogen Management of *Justicia brandegeana* Using Optical Sensor Technology. Agriculture. 9 (5), 98; <https://doi.org/10.3390/agriculture9050098>.

Vendrame, W and **Khoddamzadeh, A.A.** 2016. Orchid Biotechnology. Jules Janick (Ed.), Horticultural Reviews, Volume 44 (pp. 173-228).

***Khoddamzadeh, A.A.** and Dunn, B.L. 2016. Application of canopy sensors for nitrogen assessment management in chrysanthemum. HortScience. 51 (7): 915-920.

Dunn, B.L., Shrestha, A., Goad, C. and **Khoddamzadeh, A.A.** 2015. Use of optical sensors to assess Gaillardia Foug. nitrogen status. Journal of Applied Horticulture. 17 (3): 181-185.

- ***Khoddamzadeh, A.A.**, Sinniah, U.R., Lynch, P., Kadir, M.A., Kadzimin, S.B. and Maziah, M. 2011. Cryopreservation of Protocorm-Like Bodies (PLBs) of *Phalaenopsis bellina* (Rchb.f.) Christenson by Encapsulation-Dehydration. *Plant Cell, Tissue & Organ Culture*. 107 (3): 471-481.
- ***Khoddamzadeh, A.A.**, Sinniah, U.R., Kadir, M.A., Kadzimin, S.B and Maziah, M. 2011. *In-vitro* Induction and Proliferation of Protocorm-Like Bodies (PLBs) from Leaf Segments of *Phalaenopsis bellina* (Rchb.f.) Christenson. *Plant Growth Regulation*. 65 (2): 381-387.
- James Antony, J.J., Sinniah, U.R., Ceong, C.L., Pobathy, R., **Khoddamzadeh, A.A.** and Sreeramanan, S. 2011. Selected potential encapsulation - dehydration parameters on *Dendrobium Bobby* Messina protocorm - like bodies using TTC analysis. *Australian Journal of Crop Sciences*. 5 (13): 1817-1822.
- Sreeramanan, S., Sinniah, U.R., **Khoddamzadeh, A.A.**, Periasamy, S. and James, J. 2011. Fundamental concept of cryopreservation using *Dendrobium sonia-17* protocorm-like bodies by encapsulation-dehydration technique. *African Journal of Biotechnology*. 10 (19): 3902-3907.
- ***Khoddamzadeh A.A.**, Sinniah U.R, Kadir M.A, Kadzimin S.B, Maziah, M. and Sreeramanan, S. 2010. Detection of Somaclonal Variation by Random Amplified Polymorphic DNA Analysis During Micropropagation of *Phalaenopsis bellina* (Rchb.f.) Christenson. *African Journal of Biotechnology*. 4 (90): 6632-6639.
- ***Khoddamzadeh, A.A.**, Sinniah, U.R., Kadir, M.A., Kadzimin, S.B. and Maziah, M. 2011. Synthetic Seed Production: Establishment of a Short-term Storage Method *via* Encapsulation of PLBs in *Phalaenopsis bellina* (Rchb.f.) Christenson. *Seed Science and Technology*. 39 (3): 697-702.
- Zainudin, M., Julkifle, A.L., Pobathy, R., Sinniah, U.R., **Khoddamzadeh, A.A.**, James Antony, J.J. and Sreeramanan, S. 2011. Preliminary analysis on cryopreservation of *Dendrobium/Bobby* Messina orchid using an encapsulation-dehydration technique with Evans blue assay. *African Journal of Biotechnology*. 10 (56): 11870-11878.
- ***Khoddamzadeh, A.A.** 2007. Production technology of industrial and engine lubricant based on plants base oil. *BOC Magazine*, May-Jun. p17-21.
- ***Khoddamzadeh, A.A.** 2006. Soy Milk. *Agriculture and Stable Extension Journal*, Sep-Oct. p 17-21.

Funding Activity (Awarded: ≈ \$3.5M, Pending: ≈ \$900K)

- Smart Sustainable Fertilizer Manager, PI
Funding Source: The National Science Foundation's Innovation Corps (NSF I-Corps™)
Total budget: \$50,000. 2022 (Awarded)
- Building Research, Education, And Leadership for Agriculture and Related Career (bREAL – ARC), Co-PI. PI: Dr. Mahadev Bhat
USDA National Institute of Food and Agriculture - HSI
Total budget: \$1,000,000. 2022 (Awarded)
- Water Quality Assessment in Florida's Ag. Sector, PI
Funding Source: WEO Foundation
Total budget: \$38,000. 2022 (Awarded)
- Plant Tissue Culture in Selected Ornamentals and Fruit Trees , PI
Funding Source: Fairchild Tropical Botanic Garden
Total budget: \$6,000. 2022 (Awarded)
- Research and Extension Experiences for Undergraduates (REEU): Sustainable and Conservation Horticulture Multidisciplinary Experiential Learning in South Florida, PI
Funding Source: USDA NIFA Agriculture and Food Research Initiative - Education and Workforce Development
Total budget: \$600,000. 2022 (Pending)
- Educational Pathways for the Underrepresented Students in Sustainable Agritourism Sector, Co-PI
Funding Source: USDA NIFA HSI
Total budget: \$247,889.38. 2022 (Pending)
- Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops, PI
Funding Source: USDA Specialty Crop Block Grant Program
Total budget: \$ 82677.37. 2021 (Awarded)
- Herb Spiral Garden and Irrigation Project, PI and Compost Pile Project, Co-PI
Funding Source: FIU Office of Sustainability
Total budget: \$5,000. 2019 (Awarded)
- Cochran Fellowship Program, Co-PI
Funding Source: USDA - Marketing of Agricultural Produce (Fruit and Vegetables)-Moldova.
Total budget: \$63,000. 2017 (Awarded)
- Innovative Curriculum for Agriculture Training and Career for Hispanics, Co-PI
Funding Source: USDA NIFA HSI
Total budget: \$2,049,601. 2016 (Awarded)

- Cochran Fellowship Program, Co-PI
Funding Source: USDA
Total budget: \$85,356.46. 2016 (Awarded)
- Cultivar Evaluation and Precision Water Assessment in Grapevine with the emphasis on Super-Absorbent Polymers, PI
Funding Source: Oklahoma Viticulture and Enology
Total budget: \$24,976. 2015 (Awarded)
- Effects of super-absorbent polymers on grapevine transplant cultivars, PI
Funding Source: Oklahoma Viticulture and Enology
Total budget: \$20,616. 2014 (Awarded)
- Callus induction, multiplication and acclimatization of fig tree, Co-PI
Funding Source: Ferdowsi University of Mashhad's faculty startup grant
Total budget: Approximately \$10,000. 2012 (Awarded)
- Investigations on the cardinal temperatures for germination of five medicinal plants, PI
Funding Source: Iran's medicinal plant Association
Total budget: Approximately \$2,000. 2012 (Awarded)
- Commercial saffron tissue culture protocol optimization (Co-PI) + tissue culture propagation of promising selected clones (PI) + selection of superior clone's regional experiment (Co-PI)
Funding Source: Agricultural Biotechnology Research Institute
Total budget: Approximately \$56,000. 2012-2015 (Awarded)
- Comprehensive study of drug metabolites and introduce the best jujube, PI
Funding Source: Agricultural Biotechnology Research Institute
Total budget: Approximately \$10,000. 2012-2013 (Awarded)
- Study of genetically potential of berberis in order to gene bank preservation, PI
Funding Source: Agricultural Biotechnology Research Institute
Total budget: Approximately \$11,000. 2012-2014 (Awarded)
- Introducing the finest berberis based pharmaceutical aspects and food ingredients, Co-PI.
Funding Source: Agricultural Biotechnology Research Institute
Total budget: Approximately \$10,000. 2012-2014 (Awarded)

Teaching

AGG 4941: Agriculture Internship

AGR 3930: Agriculture Colloquium: Medicinal, Aromatic, and Poisonous Plants (MAPs)

AGR 3930: Agriculture Colloquium: Biotechnology Applications in Horticultural Crops

AGR 3930: Agriculture Colloquium: Seed Technology, Biology, and Conservation

AGR 4240: Modern Crop Production/AGR 5241*: Advance Modern Crop Production

EVR 1001: Introduction to Environmental Science & Sustainability

EVR 4274: Sustainable Agriculture

EVR 4905/EVR 5907*: Independent Study
EVR 6970*: Supervised Research
HOS 3012/EVR 5935*: Introduction to Horticulture Sciences
HOS 3012L: Horticulture Science Lab
IDS 1273: First Year Seminar - Sustainability
IDS 4232: Sustainability in Action
ISC 1273: First Year Seminar - Earth and Environment
ISC 4940: Research Internship
*Graduate level**

All the syllabuses are online and can be found at
<https://earthenvironment.fiu.edu/academics/syllabi/>

Courses Taught at other Institution

- Plant Propagation (+ Lab)
- Urban Horticulture Production
- Plant Ecology
- Tissue Culture (+ Lab)
- General Botany/Botany Fundamental
- Plant Physiology

Conference (Oral/Poster)

- Pradhan, N., Martini, F., Yang, M., **Khoddamzadeh, A.A.**, Cao, K. F, Manage Goodale, U. 2022. Comprehensive approach for seed banking of *Bletilla striata*, an endangered terrestrial orchid: recommendations for research and conservation. Botany Conference. Anchorage, AK.
- Tucker, D., Souza Costa, B. N. and **Khoddamzadeh, A.A.** 2022. Application of Optical Sensor Technologies for Fertilizer Management Optimization in *Chrysobalanus icaco*. Florida Rare Plant Task Force Conference. Bok Tower Gardens, Florida.
- Souza Costa, B. N., Gonzalez, R., Tucker, D., Sabir, A. S. and **Khoddamzadeh, A.A.** 2022. Nitrogen Management Using Non-Destructive Optical Sensors in Wild Coffee. Florida Rare Plant Task Force Conference. Bok Tower Gardens, Florida.
- Tucker, D., Costa, B.N.S. and **Khoddamzadeh, A.A.** 2022. Fertilizer Best Management Practices of Cocoplum, a Native Landscaping Plant. ASHS Annual Conference. Chicago, IL.
- Costa, B.N.S. and **Khoddamzadeh, A.A.** 2022. Use of Non-Destructive Optical Sensors for Fertilizer Management in Wild Coffee, a Plant Native to South Florida. ASHS Annual Conference. Chicago, IL.
- Costa, B.N.S. and **Khoddamzadeh, A.A.** 2022. Precision Agriculture Application to Monitor *Sabal palmetto* Nitrogen Status. ASHS Annual Conference. Chicago, IL.
- Costa, B.N.S., Carrillo, A. and **Khoddamzadeh, A.A.** 2022. Fertilizer Optimization of a Native Landscaping Plant, Satin Leaf Using Optical Sensor Technology. ASHS Annual Conference. Chicago, IL.
- Costa, B.N.S. and **Khoddamzadeh, A.A.** 2022. Sustainable Nitrogen Management of Cacao Using Non-Destructive Optical Sensors. ASHS Annual Conference. Chicago, IL.

- Garcia, E., **Khoddamzadeh, A.A.** and Downing, J. and. 2021. Phylogenetic Analysis of Mycorrhizal Fungi in South Florida Native Orchids in Different Micro-Climates. ASHS Annual Conference. Denver, CO.
- Flores, J., **Khoddamzadeh, A.A.** and Griffith, P. 2021. Climate Change Adaptation and Saltwater Intrusion Ecophysiological Effects on *Pseudophoenix Sargentii*, *Roystonea Regia*, *Sabal Palmetto* 'lisa', and *Thrinax Radiata* in South Florida. ASHS Annual Conference. Denver, CO.
- Mullin, A., Downing, J. and **Khoddamzadeh, A.A.** 2021. *In Vitro* Micropropagation and acclimatization of endangered native orchids. ASHS Annual Conference. Denver, CO.
- Garcia, E., **Khoddamzadeh, A.A.** and Downing, J. and. 2021. Study of Symbiotic Relationship between Mycorrhizal Fungi and Native Orchids in Different Micro-Climates. E&E Graduate Symposium. Miami, FL.
- Mullin, A., Downing, J. and **Khoddamzadeh, A.A.** 2021. Tissue Culture and Acclimatization of Endangered and Threatened Native Orchids. E&E Graduate Symposium. Miami, FL.
- Lewin, K., Herrera, B., Salazar-Amoretti, D. and **Khoddamzadeh, A.A.** 2020. Ethnomedicinal properties of mountain soursop (*Annona montana*). ASHS Annual Conference (Virtual). Orlando, FL.
- Belfer, S., Downing, J. and Khoddamzadeh, A. Screening media for native Floridian and Puerto Rican fern spore germination. ASHS Annual Conference (Virtual). Orlando, FL.
- Garcia, E., **Khoddamzadeh, A.A.** and Downing, J. and. 2020. Conservation of South Florida Orchid Mycorrhiza. ASHS Annual Conference (Virtual). Orlando, FL.
- Mullin, A., Downing, J. and **Khoddamzadeh, A.A.** 2020. Endangered Orchids Fast Tissue Culture and Cryopreservation. ASHS Annual Conference (Virtual). Orlando, FL.
- Garcia, E., Downing, J. and **Khoddamzadeh, A.A.** 2020. Assessing Optimal Growing Conditions of Native Orchids in Urban Ecosystems. Earth & Environment Department Graduate Symposium, Miami FL.
- Mullin, A., Downing, J. and **Khoddamzadeh, A.A.** 2020. *In-vitro* Micropropagation of Endangered Native Orchids. Earth & Environment Department Graduate Symposium, Miami FL.
- Sugino, D., Jayachandran, K, Diego, S. and **Khoddamzadeh, A.A.** 2020. Influence of Vermicompost Tea on Secondary Metabolite Production in *Solanum lycopersicum*. 2020. Earth & Environment Department Graduate Symposium, Miami FL.
- Cruz, A., Downing, J. and **Khoddamzadeh, A.A.** 2019. Adaptation and Conservation in *Myrmecophila*. 7th International Orchid Conservation Congress. Kew Gardens, London, UK.
- De Stefano, D., Downing, J. and **Khoddamzadeh, A.A.** 2019. Application of Organic Amendments in Tissue Culture of South Floridian Endangered Orchids. 7th International Orchid Conservation Congress. Kew Gardens, London, UK.
- De Stefano, D., Downing, J. and **Khoddamzadeh, A.A.** 2018. Conservational Horticulture: Applications of Biotechnology in Micropropagation of an Endangered S. Florida Native Orchid Species. Tropical Botany Conference. Fairchild Tropical Botanic Garden. October 30-November 4, Miami FL.
- Alcolea, A and **Khoddamzadeh, A.A.** 2018 Poinsettia Nursery Production: Horticulture Lab Experiential Learning Activity. ASHS Annual Conference. Washington, DC.
- Cruz, A., Downing, J and **Khoddamzadeh, A.A.** 2018. Adaptation and Challenges of Orchid Conservation in South Florida. ASHS Annual Conference. Washington, DC.

- Jayachandran, K., Bhat, M., Shetty, K., **Khoddamzadeh, A.A.** and Beatancourt, E. 2018. "An Innovative Agricultural Science Education at a Non-Land-Grant University". 64th Annual North American Colleges and Teachers of Agriculture Conference (NACTA).
- De Stefano, D., **Khoddamzadeh, A.A.**, Downing, J. 2018. Micropropagation of *Epidendrum nocturnum*, an Endangered Native Orchid Using Organic Media. ASHS Annual Conference. Washington, DC.
- Rodriguez A., Freidenreich, A., **Khoddamzadeh, A.A.** and Jayachandran, K. 2017. Application of Optical Sensor Technology for Sustainable Fertilizer Management of *Euphorbia pulcherrima*. ASA, CSSA & SSSA International Annual Meetings. Tampa, FL.
- Barraza, G.A., Freidenreich, A., **Khoddamzadeh, A.A.** and Jayachandran, K. 2017. Non-Destructive Handheld Sensors for Sustainable Fertilizer Management of *Justicia brandegeana*. ASA, CSSA & SSSA International Annual Meetings. Tampa, FL.
- Riera, D., **Khoddamzadeh, A.A.**, Lewis, C. and Jayachandran, K. 2017. Florida Cowhorn Orchid: an Alternative *Ex-situ* Conservation Method for the Endangered *Cyrtopodium punctatum*. Florida Rare Task Force Conference. Naples, Florida.
- Barraza, G.A., **Khoddamzadeh, A.A.**, Freidenreich, A., Riera, D., Jayachandran, K. and Shetty, K. 2017. Non-Destructive Handheld Sensors for Sustainable Fertilizer Management in *Justifia brandegeana*. Agroecology Symposium. Miami, FL.
- Rodriguez A., **Khoddamzadeh, A.A.**, Vendrame, W., Jayachandran K. and Freidenreich, A. 2017. Poinsettia Fertilizer Management: Application of Optical Sensor Technology. Agroecology Symposium. Miami, Florida.
- Marques. E., Soraes, C., Rahm, J., **Khoddamzadeh, A.A.** and von Wettberg, E. 2017. Seed Vigor Evaluation in Chickpea (*Cicer arietinum*) and Pigeon pea (*Cajanus cajan*). Agroecology Symposium. Miami, FL.
- Betancourt, E., Bhat, M. G., Jayachandran, K., Shetty, K and Khoddamzadeh, A. A. 2017 Innovative Curriculum for Agriculture Training and Career for Hispanics. Poster Presented at the USDA HSI National Project Directors Meeting, Albuquerque, New Mexico.
- Riera, D., **Khoddamzadeh, A.A.**, Lewis, C., and Jayachandran, K. 2016. *Ex-situ* Conservation Strategy: Cryopreservation of Threatened Floridian Orchids by Encapsulation-Dehydration. International Tropical Botany and Pine Rockland Conference. Miami, Florida.
- Duarte, E., Vandenberg, K., **Khoddamzadeh, A.A.**, Supurna, D., Mathee, K. and Jayachandran, K. 2016. Panax Ginseng Extracts as a Novel Antibiotic. ASHS Annual Conference. Atlanta, Georgia.
- Font, A., **Khoddamzadeh, A.A.**, Supurna, D., Mathee, K. and Jayachandran, K. 2016. Anti-Bacterial Properties of the Annona Montana. ASHS Annual Conference. Atlanta, Georgia.
- Barraza, G.A., **Khoddamzadeh, A.A.**, Riera, D. and Jayachandran, K, Shetty, K. Handheld Sensors Application for Fertilizer Management in Landscaping Ornamental *Justifia Brandegeana*. 2016. ASHS Annual Conference. Atlanta, Georgia.
- Riera, D., **Khoddamzadeh, A.A.**, Lewis, C., Vendrame, W. and Jayachandran, K. 2016 Commercial Orchid Production: Artificial/Synthetic Seed Approach. ASHS Annual Conference. Atlanta, Georgia.

- Riera, D., **Khoddamzadeh, A.A.**, Lewis, C., Vendrame, W. and Jayachandran, K. 2016 Orchids on Ice: Protecting Imperiled Floridian Orchids through Cryopreservation. ASHS Annual Conference. Atlanta, Georgia.
- Khoddamzadeh, A.A.** and Dunn, B.L. 2015. *In-vitro* Conservation Methods in Rain lilies. ASHS Annual Conference. New Orleans, Louisiana.
- Khoddamzadeh, A.A.** and Dunn, B.L. 2015. Cultivar evaluation and precision water assessment in grapevine. ASHS Annual Conference. New Orleans, Louisiana.
- Khoddamzadeh, A.A.** and Dunn, B.L. 2014. Embryo rescue and synthetic seed production in rain lilies. ASHS Annual Conference. Orlando, Florida.
- Khoddamzadeh, A.A.** and Dunn, B.L. 2014. Artificial seed and cryopreservation in horticultural crops. ASHS Annual Conference. Orlando, Florida.
- Khoddamzadeh, A.A.** and Dunn, B.L. 2014. Application of precision agriculture technology to determine N level in Chrysanthemum. ASHS Annual Conference. Orlando, Florida.
- Roustami, M., Rasam, G.A. and **Khoddamzadeh, A.A.** 2013. Investigations on the cardinal temperatures for germination of two weeds; *Xanthium strumarium* L. and *Hyoscyamus niger* L. 5th Iranian Weed Science Conference. August 24-26. Proceeding paper, University of Tehran.
- Khoddamzadeh, A.A.** and Safarnejad, A. 2012. Ornamental Preseravtions. 3rd Iranian Agricultural Biotechnology Conference. Sep 3-5. Proceeding paper, Ferdowsi University of Mashhad.
- Zarghami, R., Hesar, N., Seif, E. and **Khoddamzadeh, A.A.** 2012. Evaluation of different IBA hormone treatments on rooting of Elberta cultivar in Peach. 3rd Iranian Agricultural Biotechnology Conference. September 3-5. Proceeding paper, Ferdowsi University of Mashhad.
- Moghimi, Z, Safarnejad, A. and **Khoddamzadeh, A.A.** 2012. Calluse induction and proliferation and flavonoid compounds extraction in *Crataegus* spp. 3rd Iranian Agricultural Biotechnology Conference. September 3-5. Proceeding paper, Ferdowsi University of Mashhad.
- Khoddamzadeh, A.A.**, Sinniah, U.R and Ghafoori, M. 2010. Genetic, Analysis of Somaclonal Variation during Multiplication in Orchid. 16th National and 4th International Conference of Biology. September 14-16. Proceeding paper, Ferdowsi University of Mashhad.
- Khoddamzadeh, A.A.**, Sinniah, U.R, Kadir, M.A, Kadzimin, S.B and Maziah, M. 2009. Effect of different media with organic additives on growth of protocorm like bodies (PLBs) in *Phalaenopsis bellina*. Agriculture Congress. October 27-29. Proceeding paper, Selangor. Y57.
- Khoddamzadeh, A.A.**, Sinniah, U.R., Zarghami, R., Daneshian, J., Hamidi, I. and Hadi, H. 2007. Seed Quality of Soybean [*Glycine max* (L.) Merr] Cultivars and Lines harvested from plants subjected to drought stress. 5th seed symposium. IOI resort.
- Hadi, H., Daneshian, J., Jonubi, P., **Khoddamzadeh, A.A.** 2007. The relationship between sensitivity and drought tolerance of soybean genotypes under limited irrigation. Second National Conference of Drought Impacts and Management Strategies.

Javadi, A., Dashti, A., **Khoddamzadeh, A. A.** and Sazandehchi, P. 2007. Production of Organic Sulphur Fertilizer from Hydrolyzed Bagasse. Second Sugar Cane Technologist Seminar.

Agency Reports

Khoddamzadeh, A. A. 2022. Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops. USDA Specialty Crop Block Grant Program. January, April, July, October.

Khoddamzadeh, A. A. 2022. NSF I-Corps™. Smart Sustainable Fertilizer Manager.

Khoddamzadeh, A. A. 2022. WEO Foundation. Water Quality Assessment in Florida's Ag Sector.

Khoddamzadeh, A. A. 2021. Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops. USDA Specialty Crop Block Grant Program. January, April, July, October.

Betancourt, E., Bhat, M. G., Jayachandran, K., Maul, P., Gonzalez, A., **Khoddamzadeh, A.A.**, Shetty, K., Sacasa, P and Archbold, C. Innovative Curriculum for Agricultural Training and Career for Hispanics. Annual Report submitted to the US Department of Agriculture, National Institute of Food and Agriculture, under the Cooperative Agreement 2016-38422-25549, Department of Earth and Environment, Florida International University, Miami, for year ending, August 2020.

Betancourt, E., Bhat, M. G., Jayachandran, K., Shetty, K and **Khoddamzadeh, A. A.** 2017. Innovative Curriculum for Agriculture Training and Career for Hispanics. Poster Presented at the USDA HSI National Project Directors Meeting, Albuquerque, New Mexico.

Invited Speaker

Orchid Seed bank and Cryopreservation. 2019. Plant Ecophysiology and Evolution Group at College of Forestry, Guangxi University, China.

Guest lecture at Natural Resources and Conservation and Policy (EVR 6377) Course. 2019. FIU. Miami, FL.

Improvement of Seed Technology Practices in Medicinal (Herbs & Spices) Plants and Horticultural Crops. 2018. ASHS Annual Conference. Washington, DC.

ORH 1283-Survey of Orchids - 10th Orchid Short Course. 2018. Emerson Alumni Hall University of Florida, Gainesville, FL.

Florida Native Plant Society. Orchid Conservation, Restoration, and Citizen Science. 2018. Miccosukee Resort. Miami, FL.

In-Vitro Conservation of the Critically Threatened Floridian Orchids by Encapsulation-Dehydration. 2017. Florida Native Plant Society Annual Conference, River Ranch, Florida.

Medium and Long-Term *In-Vitro* Conservation of South Florida Endangered Orchids. 2017. Florida Native Plant Society-Dade Chapter. Pinecrest Garden, Miami, Florida.

Florida Cowhorn Orchid: an Alternative *Ex-situ* Conservation Method for the Endangered *Cyrtopodium punctatum*. 2017. Society of Wetland Scientists Annual Conference. San Juan, Puerto Rico.

“Novel Challenges and Opportunities in Tropical Ornamental Horticulture: Orchid Biotechnology”. 2016. ASHS Annual Conference. Atlanta, Georgia. The title of the talk: Why Artificial/Synthetic Seed Technology in Orchids?

Future of Orchid Research. 2016. ASHS Annual Conference. Atlanta, Georgia.

Smart Application Technology for Sustainable Nursery Production Management. 2016. International Workshop on Agroecology and Sustainable Agriculture. Miami, FL.

Sustainable Horticulture in the Subtropics. 2016. International Workshop on Agroecology and Sustainable Agriculture. Miami, FL.

Embryo rescue and artificial seed encapsulation treatments in flowers. 2015. ASHS Annual Conference. New Orleans, Louisiana.

Evaluating the impact of Superabsorbent Polymers on grapevine water management. 2015. ASHS Annual Conference. New Orleans, Louisiana.

Plant genebanking in the Middle East and South East Asia, Its Potentials and Challenges. 2014. Keynote Speaker at International Division, American Society for Horticultural Science. ASHS Annual Conference. Orlando, Florida.

Cryopreservation and synthetic seed production. 2012. Third Agricultural Biotechnology Conference. Keynote Speaker, Ferdowsi University of Mashhad.

Conference/Symposium/Workshop Leader-Facilitator

- Earth Month Composting Webinar Panelist, Institute of Environment, April, 2020.
- PGR - Plant Growth Regulators Application on Ornamental Plants. 2020. Fairchild Tropical Botanic Garden, Miami, FL.
- Orchid Genebanking. 2019. Plant Ecophysiology and Evolution Group at College of Forestry, Guangxi University, China.
- International Workshop on Agroecology and Sustainable Agriculture. 2019. FIU.
- Summer Agroecology High School Internship Program. 2019. FIU
- Smithsonian Environmental Research Center Facilities Tour. 2018. ASHS Annual Conference. Washington, D.C.
- Summer Agroecology High School Internship Program. 2018. FIU
- Florida Native Plant Society. Orchid Conservation, Restoration, and Citizen Science. 2018. Miccosukee Resort. Miami, FL.
- Agroecology Symposium. Current and Future Opportunities in Commercial Floriculture. 2018. FIU.
- Summer Teachers Learning Program. 2017. FIU
- Summer Agroecology High School Internship Program. 2017. FIU
- Orchid Professional Workshop. 2017. FIU-UF
- Cochran Fellowship Program- Eastern Europe and Eurasia. 2017. FIU
- Cochran Fellowship Program- Latin America and Caribbean. 2016. FIU
- International Workshop on Agroecology and Sustainable Agriculture. 2016. FIU.
- Agroecology Symposium: Fruit Production in the Tropics & Food Security. 2016. FIU.
- Propagation Techniques, 2015 and 2016. FIU Organic Garden.
- Medicinal Uses of Essential Oils & Herbs in Complementary Alternative Medicine. 2015. FIU.

- Artificial seed and cryopreservation in horticultural crops. 2014. ASHS Annual Conference. Orlando, FL.

Institutional Service

- Undergraduate Program Director, Fall 2019
- Faculty Fellow: University Diversity, Equity and Inclusion (DEI) Undergraduate Committee
- Faculty Fellow: Honors College
- College of Arts, Sciences, and Education (CASE) Carbon Footprint Reduction Committee (Chair-Space and Minimization Subcommittee). A college wide initiative to decrease carbon footprint on Campus.
- CASE DEI Working Group
- Undergraduate Committee, Fall 2015
- [Organic Garden Faculty Supervisor](#)
- Garden Club Faculty Advisor
- Poinsettia Sales Event
- Agroecology Certificate Committee
- Sustainability Program Revision Committee
- Search and Screen Committee (2018)

Professional Service

- IUCN Seed Conservation Specialist Group (2022-present.)
- Secretary (2022-2023) Orchid Interest Group. American Society for Horticultural Science (ASHS)
- Secretary (2022-2023) Seed and Stand Establishment (SSEST) Interest Group-ASHS
- Chair (2021-2022) Human Issues-ASHS
- Nominations and Elections Committee (2019-2021)-ASHS
- Chair (2018-2019) Graduate Student Activities Committee-ASHS
- Chair (2018-2019) Outstanding International Horticulturist Award Committee-ASHS
- Co-Chair (2017) Graduate Students Poster Competition, ASHS Conference - Hawaii
- Chair (2017-2018) Ornamental Plant Breeding Interest Group-ASHS
- Chair (2017-2018) Seed and Stand Establishment Interest Group-ASHS
- Conservation Committee and Education Committee - Florida Native Plant Society (FNPS)
- Dan Austin Award for Ethnobotany Committee-FNPS
- Partnership and Engagement and Educational Initiatives Working Groups Committee - FIU Tropics
- Editorial Board - Advances in Food Technology and Nutrition Sciences
- Editorial Board - Advances in Agriculture and Environmental Science
- Editorial Board - Environmental Sciences and Environmental Toxicology
- Editorial Board – Topic Editor, Plant-MDPI.

Professional Meetings and Peer Review Panels

- USDA- NIFA - Federal Grant Peer Review Panelist - K-14 Food, Agricultural, Natural Resources and Human Sciences Education Grant Program. 2022.
- USDA- NIFA - Federal Grant Peer Review Panelist - K-14 Food, Agricultural, Natural Resources and Human Sciences Education Grant Program. 2021.
- USDA- NIFA - Federal Grant Peer Review Panelist - K-14 Food, Agricultural, Natural Resources and Human Sciences Education Grant Program. 2020.
- International Network for Sustainable Ecosystem Services of a Tropical Biodiversity Hotspot Under Global Change. The Kampong Garden, 2020.
- IUCN Conservation Grant Review Panel. 2019.
- USDA- NIFA - Federal Grant Peer Review Panelist - K-14 Food, Agricultural, Natural Resources and Human Sciences Education Grant Program. 2019.
- Florida Department of Education - Sunshine State Scholars Expert panel. 2019
- Hispanic Serving Institutions (HSI) Program New Project Directors' Conference. 2018. Washington, D.C.
- Southeastern Partners in Plant Conservation (SePPCon) Meeting. 2016. Atlanta Botanic Garden.
- The North American Orchid Conservation Center (NAOCC) Florida-Georgia Regional Effort. 2015. Naples Botanic Garden.

Professional Development/Certificate

- The Leadership Accelerator Program, An Executive Leadership Development Program, Center for Leadership, FIU, 2021.
- At-Risk for Faculty & Staff course from Kognito, FIU, 2021.
- Introducing Equity & Inclusion in Your Department, FIU, 2020.
- Presidential Leadership Program Cohort 4, FIU, 2020.
- Career Partners Training Certificate, FIU Career and Talent Development, 2020.
- Institutional Effectiveness Assessment Certificate, FIU, 2020.
- Remote Teach Ready, 2020.
- The Family Educational Rights and Privacy Act (FERPA) Certificate, Office of University Compliance & Integrity, FIU. 2020.
- Virtual Study Abroad (VSA) Professional Development Workshop, FIU, 2020.
- Canvas and Zoom Essentials for Remote Teaching, 2020.
- Bystander Leadership Workshop-NSF Funded, FIU, 2019.
- Serving Today's Diverse Students, the Opportunity to Peer Mentoring, San Francisco State University, 2019.
- Strategies and Tactics for Recruitment to Increase Diversity and Excellence (STRIDE) workshop, 2018.
- Discipline-Based Education Research Meetings, FIU, 2015-present.
- Produce Safety Alliance Grower Training Certificate, Homestead, FL 2018.
- Strategies and Tactics for Recruiting to Increase Diversity and Excellence Workshop by Office of Equal Opportunity Programs and Diversity, FIU, 2017.
- Global Learning Workshops, 2017, 2018, 2019.
- Several Workshops on Online Teaching, FIU, 2017, 2018, 2019, 2020.
- Hybrid Teaching Workshop, 2016, 2017.
- Faculty Mentor Program, FIU, 2016.



Administration

As the undergraduate program director of the [Earth and Environment Department](#) with 400 undergraduate students, I oversee all 7 programs and 3 minors, and am serving in the committee of certificate programs. I also lead the below university initiatives in my department:

1. **The Curriculum Enhancement Project (CEP)** is designed to ensure that all undergraduate curricula in the College of Arts, Science and Education are effective, efficient and meet current standards of each discipline, thereby supporting student success maximally. The project consists of a sequence of five tasks that include the identification of **Student Learning Goals (SLG)** and **Core Student Learning Outcomes (CSLO)**, curriculum review and mapping and the development and implementation of curriculum enhancement strategies.
2. Creates guidelines for the **change of major process** into their majors (specific courses, grades, markers, milestones that would make a student more successful in different program). These guidelines will be used by outside advisors or redirection specialists helping students select an appropriate prospective major.
3. Created **guidelines** established for students wanting to **switch into a major** within the following time frames. 1. Less than 30 credits earned, 2. 30-44 credits earned, 3. 45-59 credits earned, 4. 60+ credits earned.
4. **Exit Exam Survey** and **Program Outcomes (POs)** for all the programs in the department.
5. **Advising** and **Mentorship**.
6. Department by-laws ad-hoc committee.

Student Advising

- Postdoc Associate: 1
- Graduate Dissertation/Thesis:
- M.Sc.: 7 (Major advisor), 7 (Committee)
- Ph.D.: 1 (Major advisor), 4 (Committee)
- Undergraduate Projects: 80 (Advisor)

Member of Groups and Association

- American Society for Horticultural Science
- American Association for the Advancement of Science
- Society for *In-Vitro* Biology
- Florida State Horticultural Society
- Florida Native Plant Society
- The Society for Conservation Biology

Team

Postdoc

Dr. Bárbara Nogueira Souza Costa: Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops.

Staff

Tissue Culture Research Associate: **Dr. Irton de Jesus Silva Costa**

Research Assistant: **Daniel Tucker**

Graduate Student Major Advisor

Luis Cendan (Ph.D.)

Milagros Munoz Salas (M.S.c)

Pedro Daniel Gonzalez (M.S.c)

Nayla Alcocer-Martos (BA/M.S.c)

Andrew Mullin (M.S.c): *In-vitro* Micropropagation and Acclimatization of Native Endangered Orchids. Graduated 2022.

Ellen Garcia (M.S.c): Conservation of South Florida Orchid Mycorrhizal Fungi. Graduated 2021.

David Riera (M.S.c): Graduated 2017. Synthetic Seed Production and Cryopreservation of Endangered Orchids 2017 FIU Worlds Ahead Graduate.

Graduate Student Committee Member

Leticia Ines Matos (M.S.c): Impacts of legume-grass consortia on soil quality recovery and cattle's weight gain. Major Advisor: Dr. Krish Jayachandran.

Ganesh Khadka (Ph.D.): Characterization of endophytic microbiomes for their antimicrobial properties isolated from medicinal plants. Major Advisor: Dr. Krish Jayachandran.

Samuel Kent (Ph.D.): Horticultural nurseries-based pollution dynamics and modeling in canals of South Miami Dade, Florida. Major Advisor: Dr. Assefa Melesse.

Namrata Pradhan (Ph.D.): Seed viability assessments and long-term preservation using cryopreservation in Cymbidium species. Major Advisor: Dr. Uromi Manage Goodale.

Daphne Sugino (M.S.c): Influence of Vermicompost Tea on Secondary Metabolites in *Solanum lycopersicum* within South Florida. Worlds Ahead Graduates. Major Advisor: Dr. Krish Jayachandran.

Claudia Garcia (M.S.c): Inoculating rhizobium and arbuscular mycorrhizal fungi on *Phaseolus vulgaris* under salinity stress to evaluate effects on plant growth and glomalin production. Major Advisor: Dr. Krish Jayachandran.

Edward Marques (Ph.D.). Major Advisor: Dr. Eric Von Wettberg

Undergraduate Students with Research

Milagros Munoz Salas: Fertilizer Best Management Practices of Native Landscaping Plants. Conservation & Sustainable Horticulture Lab.

Regina Gonzalez: Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops. Conservation & Sustainable Horticulture Lab.

Daniel Tucker: Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops. Conservation & Sustainable Horticulture Lab.

Melissa Aguirre: Orchid Tissue Culture. Conservation & Sustainable Horticulture Lab.

Alejandra Carrillo: Composting and Seed Germination. Zoo Miami and Conservation & Sustainable Horticulture Lab.

Austin Montgomery: Eucalyptus Production: effects of reducing overgrowth. Zoo Miami

Marcos Garcia: Effects of Light Intensity and Quality on Most Common Indoor Plants in Vertical Gardening. Miami Vertical Garden Inc and Conservation & Sustainable Horticulture Lab.

Jason Flores: Climate Change Adaptation and Saltwater Intrusion Ecophysiological Effects on *Phoenix canariensis*, *Sabal minor*, *Roystonea regia*, *Thrinax radiata*, *Pseudophoenix sargentii* in South Florida. Montgomery Botanical Center.

Austin Montgomery: Eucalyptus Production: The Effects of Reducing Overgrowth. Zoo Miami.
Kevin Lewin: Ethnomedicinal properties of mountain soursop (*Annona montana*). Fruit and Spice Park & Possum Trot Farm.

Sarah Belfer: Screening Media for Native Floridian and Puerto Rican Fern Spore Germination. Fairchild Tropical Botanic Garden and Montgomery Botanical Center and Conservation & Sustainable Horticulture Lab.

Douglas DeStefano: Application of Organic Amendments in Tissue Culture of South Floridian Endangered Orchids. Fairchild Tropical Botanic Garden.

Alondra Cruz: Adaptation and Conservation in *Myrmecophila* spp. Fairchild Tropical Botanic Garden.

Shelby Weber: Orchid Seed Technology and Viability. Fairchild Tropical Botanic Garden.

Rena Stern: Biologic Control of Invasive Air Potato.

Azariel Mendez: Pre and Post Hurricane Irma Growth Monitoring of 15 Fruit trees in the Food Forest at FIU Organic Garden.

Gabriel Barraza: Handheld Sensors Application for Fertilizer Management in Landscaping Ornamental *Justifia Brandegeana*.

Alana Rodriguez: Application of Optical Sensor Technology for Sustainable Fertilizer Management of *Euphorbia pulcherrima*.

Ariana Font: AntiBacterial Properties of the *Annona montana*. Possum Trot Farm.

Emmanuel Duarte: *Panax ginseng* Extracts as a Novel Antibiotic. Fruit & Spice Park.

Conservation & Sustainable Horticulture Lab News

- [Professor developing new tool for plant parents](#)
- [“Living Legend Scholarship”. MiamiDadeChapter of Florida Nursery, Growers & Landscape Association \(FNGLA\)](#)
- [FIU Hospitality marks Food Waste Prevention Week with activities and tips to end food waste](#)
- [National student publication says FIU best for making difference in climate crisis](#)
- [Nitrogen Management and Plant Quality Monitoring Using Optical Sensor Technology in Native and Non-Native Specialty Crops](#)
- [My internship in horticulture at Zoo Miami](#)
- [Top 10 Colleges Where You Can Make A Difference in the Climate Crisis](#)
- [Farmers struggle during the pandemic](#)
- [Student works to save endangered orchids with friendly fungi](#)
- [Green habits at home](#)
- [Environmental Uncertainty in South Florida Grows in New Decade](#)
- [Scientists manage fertilizers to reduce environmental issues](#)
- [2019 Horticulture Professional Certificate Workshop kicks off](#)
- [FIU StartUp, DrHorticulture v1.0](#)
- [How to take care of holiday poinsettias](#)
- [The Garden Club cultivates ‘home grown, organic vegetables and plants’](#)