

# Ahmad A. Omar, Ph.D.

Citrus Research and Education Center, 700 Experiment Station Rd, Lake Alfred, FL 33850  
Cell: +1 863 521 4569 | E-mail: omar71@ufl.edu

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## EDUCATION

- Ph.D.**            **University of Florida, Gainesville, USA**            **May 2006**  
Horticultural Sciences  
*Advisor:* Jude W. Grosser, Ph.D.  
*Committee:* Gmitter, F.G. Jr.; Graham, J.H; Song, W.Y.  
*Dissertation:* Biotechnology and Its Uses in Improvement of Canker Resistance in Citrus Trees
- M.Sc.**            **Zagazig University, Egypt**            **December 1997**  
Biochemistry  
*Advisor:* Mahamoud A. Dohiem, Ph.D.  
*Thesis:* Biochemical Studies on Royal Jelly as Honeybees Product
- B.Sc.**            **Zagazig University, Egypt**            **June 1993**  
Agriculture Biochemistry  
Excellent with Honor
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## EMPLOYMENT AND RESEARCH EXPERIENCE

- Research Assistant Scientist**            **2018 – Present**  
Horticultural Sciences Department, University of Florida  
Citrus Research and Education Center
- Professor (Sabbatical)**            **2021 – Present**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
*Topic:* Plant Biochemistry and Molecular Biology
- Associate Professor**            **2016 – 2021**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
*Topic:* Plant Biochemistry and Molecular Biology
- Visiting Scientist**            **2011 – 2018**  
Horticultural Sciences Department, University of Florida  
Citrus Research and Education Center  
*Advisor:* Jude W. Grosser, Ph.D.  
*Topic:* Plant Genetics Improvement
- Assistant Professor**            **2009 – 2016**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
*Topic:* Plant Biochemistry and Molecular Biology
- Post-Doctoral Research Associate**            **2006 – 2009**  
Horticultural Sciences Department, University of Florida  
Citrus Research and Education Center  
*Advisor:* Jude W. Grosser, Ph.D.  
*Topic:* Disease Resistant Improvement in Citrus

- Graduate Student Researcher** **2000 - 2006**  
Horticultural Sciences Department, University of Florida  
Citrus Research and Education Center  
*Advisor:* Jude W. Grosser, Ph.D.  
*Topic:* Biotechnology and Its Uses in Improvement of Canker Resistance in Citrus Trees
- Research Assistant** **1998 – 1999**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
*Advisor:* Mahamoud A. Dohiem, Ph.D.
- Graduate Student Researcher** **1994 - 1997**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
*Advisor:* Samy F. Sharobeem, Ph.D.  
*Topic:* Biochemical Studies on Royal Jelly as Honeybees Product
- Chemist and Researcher** **1993 – 1994**  
Biochemistry Department, College of Agriculture, Zagazig University, Egypt  
Micro-Analysis Unit, Center Lab  
*Advisor:* Ahmed S. Hamed, Ph.D.
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## RESEARCH INTERESTS

My research interest is primarily focusing on citrus improvement and understand disease resistance mechanism for citrus canker and HLB (Huanglongbing or citrus greening). My research interest can be outlined as follow:

- 1) Citrus cell cultures and seedling derived epicotyl explants are being utilized for the genetic improvement of commercially important citrus cultivars. Novel engineered citrus lines are being produced for disease management (primarily Huanglongbing and Citrus Canker).
- 2) Utilizing molecular biology techniques and field evaluation to screen elite germplasm created by conventional breeding and/or biotechnology tools for HLB (huanglongbing) and citrus canker disease.
- 3) Develop citrus transformation methodology (Protoplast and/or *Agrobacterium*-mediated transformation) that can be reliably used to transfer disease resistance genes with all plant elements into commercial citrus cultivars resulting in improved plants that would not be regulated as GMO's.
- 4) Develop citrus protoplast transformation/regeneration protocol for genome editing using CRISPR/Cas9 that does not involve any *Agrobacterium* in the process which could lead to the production of citrus modified plants that is not regulated as GMO.
- 5) Regeneration of grapefruit and sweet orange cybrids that contain mitochondria and chloroplast from 'Meiwa' kumquat with potential for improved citrus canker resistance in important commercially citrus cultivars.
- 6) Understanding the role of chloroplast in disease resistance. Trees of grapefruit cybrid are being evaluated for tolerance to citrus canker. Results from this research should help Florida growers assess the new grapefruit cybrids in the era of citrus canker and/or HLB.

- 7) Conventional breeding methods, as well as somatic cell fusion techniques, are being used to produce somatic hybrids of mandarin (Tetraploid, 4x) to be used in the citrus breeding program to produce seedless cultivars for the fresh market.
- 8) Rescuing elite citrus germplasm using different grafting techniques especially Miro-grafting and shoot-tip grafting.
- 9) Study metabolic profile changes during diseases development in plants using NMR, GC-MS and/or LC-MS to understand plant disease resistance mechanism.
- 10) Developing micropropagation protocol for Macadamia nut as an alternative crop for Florida growers.

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## PUBLICATIONS

### Peer-reviewed Research

- Gaikwad PN, Sharma V, Singh J, Sidhu GS, Singh H, **Omar AA** (2023) Biotechnological advancements in Phytophthora disease diagnosis, interaction and management in citrus. *Scientia Horticulturae* 310. <https://doi.org/10.1016/j.scienta.2022.111739>
- Fikry AM, Radhi KS, Abourehab MAS, Abou Sayed-Ahmed TAM, Ibrahim MM, Mohsen FS, Abdou NA; **Omar AA**, Elesawi IE, El-Saadony MT (2022). Effect of Inorganic and Organic Nitrogen Sources and Biofertilizer on Murcott Mandarin Fruit Quality. *Life*;12(12), 2021. doi: <https://doi.org/10.3390/life12122120>
- Satti SH, Raja NI, Ikram M, Oraby HF, Mashwani ZU, Mohamed AH, Singh A, **Omar AA** (2022) Plant-Based Titanium Dioxide Nanoparticles Trigger Biochemical and Proteome Modifications in *Triticum aestivum* L. under Biotic Stress of *Puccinia striiformis*. *Molecules* 27 (13). <http://doi.org/10.3390/molecules27134274>
- Khan M, Mashwani Z-u-R, Ikram M, Raja NI, Mohamed AH, Ren G, **Omar AA** (2022) Efficacy of Green Cerium Oxide Nanoparticles for Potential Therapeutic Applications: Circumstantial Insight on Mechanistic Aspects. *Nanomaterials* 12 (12). <https://doi.org/10.3390/nano12122117>
- Awad-Allah MMA, Attia KA, **Omar AA**, Mohamed AH, Habiba RM, Alzuaibr FM, Alshehri MA, Alqurashi M, Aloufi S, Dessoky ES, Abdein MA (2022) Combining Ability and Gene Action Controlling Agronomic Traits for Cytoplasmic Male Sterile Line, Restorer Lines, and New Hybrids for Developing of New Drought-Tolerant Rice Hybrids. *Genes (Basel)* 13 (5). <https://doi.org/10.3390/genes13050906>
- Awad-Allah MMA, Attia KA, **Omar AA**, Dessoky ES, Alzuaibr FM, Alshehri MA, Abdein MA, Mohamed AH (2022) Development of New Iso-Cytoplasmic Rice-Restorer Lines and New Rice Hybrids with Superior Grain Yield and Grain-Quality Characteristics by Utilizing Restorers' Fertility Genes. *Genes* 13 (5). <https://doi.org/10.3390/genes13050808>
- ElSayed AI, Mohamed AH, Rafudeen MS, **Omar AA**, Awad MF, Mansour E (2022) Polyamines mitigate the destructive impacts of salinity stress by enhancing photosynthetic capacity, antioxidant defense system and upregulation of calvin cycle-related genes in rapeseed (*Brassica napus* L.). *Saudi J Biol Sci.* <https://doi.org/10.1016/j.sjbs.2022.02.053>
- Ikram M, Raja NI, Mashwani Z-U-R, **Omar AA**, Mohamed AH, Satti SH, Zohra E (2022) Phytogenic Selenium Nanoparticles Elicited the Physiological, Biochemical, and Antioxidant Defense System Amelioration of Huanglongbing-Infected 'Kinnow' Mandarin Plants. *Nanomaterials* 12 (3):356. <https://doi.org/10.3390/nano12030356>

- Soriano L, **Omar AA**, Martinelli AP (2022) Citrus Protoplast Isolation and Plant Regeneration Through Somatic Embryogenesis. In: Ramírez-Mosqueda MA (ed) Somatic Embryogenesis: Methods and Protocols. Springer US, New York, NY, pp 111-126. [https://doi.org/10.1007/978-1-0716-2485-2\\_9](https://doi.org/10.1007/978-1-0716-2485-2_9)
- Omar AA**, ElSayed AI, Mohamed AH (2022) Tangerine (*Citrus reticulata* L.) Wastes: Chemistry, Properties and Applications. In: Ramadan MF, Farag MA (eds) Mediterranean Fruits Bio-wastes. Springer Nature, Switzerland. [https://doi.org/10.1007/978-3-030-84436-3\\_11](https://doi.org/10.1007/978-3-030-84436-3_11)
- Jia H, **Omar AA**, Orbovic V, Wang N (2021) Generating biallelic canker-resistant ‘Duncan’ grapefruit plant via CRISPR-Cas9 Phytopathology <https://doi.org/10.1094/PHYTO-04-21-0144-R>
- Mohamed AH, **Omar AA**, Attya AM, Elashtokhy MMA, Zayed EM, Rizk RM (2021) Morphological and Molecular Characterization of Some Egyptian Six-Rowed Barley (*Hordeum vulgare* L.) Plants 10:2527 <https://doi.org/10.3390/plants10112527>
- Zohra, E; Ikram, M; **Omar, AA**; Hussain, M; Satti, SH.; Raja, NI.; Mashwani, ZUR.; Ehsan, M (2021) Potential applications of biogenic selenium nanoparticles in alleviating biotic and abiotic stresses in plants: A comprehensive insight on the mechanistic approach and future perspectives Green Processing and Synthesis 10:456-475 <https://doi.org/10.1515/gps-2021-0047>
- Radwan ME-H, ElSayed AI, Eldeeb SM, Taha HS, **Omar AA** (2021) Impact of maternal Vitamin D receptor (VDR) gene polymorphisms on spontaneous preterm birth (Egyptian Case-Control Study) Journal of Medical Sciences 21:9-16 <https://doi.org/10.3923/jms.2021.9.16>
- Radwan ME-H, Taha HS, ElSayed AI, **Omar AA** (2021) Evaluation of VDR gene FokI polymorphism and serum vitamin D level in gestational diabetes mellitus (Egyptian case-control study) Meta Gene 29 <https://doi.org/10.1016/j.mgene.2021.100908>
- Omar AA**, Mahgoub S, Salama A, Likotrafiti E, Rhoades J, Christakis C, Samaras P (2021) Evaluation of Lactobacillus kefir and manganese peroxidase producing-bacteria for decolorization of melanoidins and reduction of chemical oxygen demand Water and Environment Journal <https://doi.org/10.1111/wej.12663>
- Omar AA**, Zayed EM, El-Enany MF, El-Daem GAA (2020) The impact of dodder (*Cuscuta spp.*) infestation and gamma radiation on fahl ecotype of the Egyptian clover Journal of Applied Sciences 20:14-25 <https://doi.org/10.3923/jas.2020.14.25>
- Killiny, N., Jones, S.E., Hijaz, F., Kishk, A., Santos-Ortega, Y., Nehela, Y., **Omar, A.A.**, Yu, Q., Gmitter, F.G., Grosser, J.W., Dutt, M., 2020. Metabolic Profiling of Hybrids Generated from Pummelo and Citrus latipes in Relation to Their Attraction to Diaphorina citri, the Vector of Huanglongbing. Metabolites 10. <https://doi.org/10.3390/metabo10120477>
- ElSayed AI, Boulila M, Rafudeen MS, Mohamed AH, Sengupta S, Rady M, **Omar AA** (2020) Melatonin regulatory mechanisms and phylogenetic analyses of melatonin biosynthesis related genes extracted from peanut under salinity stress Plants 9:854 <https://doi.org/10.3390/plants9070854>
- Elmandouri, F.Z., Fadli, A., Talha, A., Chetto, O., **Omar, A.A.**, Bahloul, Y.E., Benkirane, R., Benyahia, H., 2020. Development of optimal conditions for the germination of argan seeds (*Argania spinosa* (L.) Skeels). Plant Cell Biotechnology and Molecular Biology 21, 57-66.

- Ali BSM, ElSayed AI, Doheem MA, Eita AMA, **Omar AA** (2020) Effect of milk thistle (*Silybum marianum* (L.) Gaertn) seed extract on bacterial activities and growth of human liver cancer cells *Journal of Biotechnology Research* 6:27-33  
<https://doi.org/10.32861/jbr.65.27.33>
- Omar, A.A.**, Zayed, E.M., El-Enany, M.F., & El-Daem, G.A.A. (2020). The impact of dodder (*Cuscuta* spp.) infestation and gamma radiation on fahl ecotype of the Egyptian clover. *Journal of Applied Sciences*, 20:14-25.
- Boulila, M., ElSayed, A.I., Rafudeen, M.S., & **Omar, A.A.** (2020). Investigating molecular evolutionary forces and phylogenetic relationships among melatonin precursor-encoding genes of different plant species. *Molecular Biology Reports*,  
<https://doi.org/10.1007/s11033-020-05249-1>
- ElSayed, A.I., El-hamahmy, M.A.M., Rafudeen, M.S., Mohamed, A.H., & **Omar, A.A.** (2019). The Impact of Drought Stress on Antioxidant Responses and Accumulation of Flavonolignans in Milk Thistle (*Silybum marianum* (L.) Gaertn). *Plants*, 8(12), 611.  
<https://doi.org/10.3390/plants8120611>
- Murata, M.M., **Omar, A.A.**, Mou, Z., Chase, C.D., Grosser, J.W., and Graham, J.H. (2019) Novel plastid-nuclear genome combinations enhance resistance to citrus canker in cybrid grapefruit. *Plant Biotechnology Journal* 9:1858. <https://doi.org/10.3389/fpls.2018.01858>
- Omar, A. A.**, Mohamed, A. H., Nasr, M. I., El-Halafawy, K. A., El-Absawy, S. A., Hamdi, A., & Zayed, E. M. 2018. Molecular Characterization of Soybean Genotypes Tolerant and/or Susceptible to Cotton Leaf Worm. *American Journal of Biochemistry and Molecular Biology*, 8(2): 34-47. <https://doi.org/10.3923/ajbmb.2018.34.47>
- Omar, A.A.**, Murata, M.M., El-Shamy, H.A., Graham, J.H., and Grosser, J.W. 2018. Enhanced resistance to citrus canker in transgenic mandarin expressing Xa21 from rice. *Transgenic Research*. 27:179-191. <https://doi.org/10.1007/s11248-018-0065-2>
- Killiny, N., M.F. Valim, S.E. Jones, **A.A. Omar**, F. Hijaz, F.G. Gmitter Jr, and J.W. Grosser. 2017. Metabolically speaking: Possible reasons behind the tolerance of ‘Sugar Belle’ mandarin hybrid to huanglongbing. *Plant Physiol. Biochem.* 116:36-47.  
<https://doi.org/10.1016/j.plaphy.2017.05.001>
- Omar, A.A.**, M.M. Murata, Q. Yu, F.G. Gmitter, Jr., C.D. Chase, J.H. Graham, and J.W. Grosser. 2017. Production of three new grapefruit cybrids with potential for improved citrus canker resistance. *In Vitro Cell. Dev. Biol. Plant.* 53:256-269.  
<https://doi.org/10.1007/s11627-017-9816-7>
- Khalifa, S.A., **A.A. Omar**, and A.H. Mohamed. 2017. The effect of substituting milk fat by peanut oil on the quality of white soft cheese. *International Journal of Dairy Science*. 12:28-40. <http://doi.org/10.3923/ijds.2017.28.40>
- ElSayed, A.I., M. Boulila, D.C. Odero, **A.A. Omar**, A.M. Gomaa, and R. Viswanathan. 2017. Characterization of ORF0 and ORF1 and their Roles in Recombination and Replication of Sugarcane yellow leaf virus. *Am. J. Biochem. Mol. Biol.* 7:41-52.  
<http://doi.org/10.3923/ajbmb.2017.41.52>
- Ibrahim, M.M., A.O. Mohamed, A.H. Mohamed, and **A.A. Omar**. 2016. Effect of some girdling treatments on fruiting behavior and physio-chemical properties of Washington navel orange trees. *Journal of Agriculture and Veterinary Science*. 9:58-65.

- Zayed, E., M. Sayed, and **A.A. Omar**. 2015. Genetic variations between two ecotypes of Egyptian clover by inter-simple sequence repeat (ISSR) techniques. *African Journal of Biotechnology*. 14:1947-1953.
- Grosser, J.W., **A.A. Omar**, J.A. Gmitter, and J.P. Syvertsen. 2012. Salinity Tolerance of 'Valencia' Orange Trees on Allotetraploid Rootstocks. *Proc. Fla. State Hort. Soc.* 125:50-55.
- Grosser, J.W., M. Dutt, **A.A. Omar**, V. Orbovic, and G. Barthe. 2011. Progress towards the development of transgenic disease resistance in citrus. *Acta Hort. (ISHS)*. 892:101-107.
- Dutt, M., **A.A. Omar**, V. Orbovic, G. Barthe, and J.W. Grosser. 2010. Progress towards incorporation of antimicrobial peptides for disease resistance in citrus. *ICC*:258-264.
- Omar**, A.A., A.H. Mohamed, and J.W. Grosser. 2009. Study of transgene expression by phloem-specific promoter in transgenic citrus plant. *Journal of Biological Chemistry and Environmental Sciences*. 4: 647-661.
- Abouziena, H.F., **A.A. Omar**, S.D. Sharma, and M. Singh. 2009. Efficacy comparison of some new natural product herbicides for weed control at two growth stages. *Weed Technol.* 23:431-437.
- Abouziena, H.F., R.A. Elmergawi, S. Sharma, **A.A. Omar**, and M. Singh. 2009. Zinc antagonizes glyphosate efficacy on yellow nutsedge (*Cyperus esculentus*). *Weed Sci.* 57:16-20.
- Omar**, A.A., and J.W. Grosser. 2008. Comparison of endoplasmic reticulum targeted and non-targeted cytoplasmic GFP as a selectable marker in citrus protoplast transformation. *Plant Sci.* 174:131-139.
- Omar**, A.A., M.G.H. Dekkers, J.H. Graham, and J.W. Grosser. 2008. Estimation of Transgene Copy Number in Transformed Citrus Plants by Quantitative Multiplex Real-Time PCR. *Biotechnol. Prog.* 24:1241-1248.
- Omar**, A.A., W.Y. Song, and J.W. Grosser. 2007. Introduction of Xa21, a *Xanthomonas*-resistance gene from rice, into 'Hamlin' sweet orange [*Citrus sinensis* (L.) Osbeck] using protoplast-GFP co-transformation or single plasmid transformation. *J. Horticul. Sci. Biotechnol.* 82:914-923.
- Omar**, A.A., and J.W. Grosser. 2007. Protoplast co-transformation and regeneration of transgenic 'Hamlin' sweet orange plants containing a cDNA Xa21 *Xanthomonas* resistance gene and GFP. *Acta Horticulture*. 738:235-244.
- Abouziena, H.F., E.R. El-Desoki, S. Sharma, **A.A. Omar**, and M. Singh. 2007. Evaluation of sowing in hills on ridges as a new technique for enhancement of Wheat (*Triticum aestivum*, L.) Productivity. *Egyptian Journal of Agronomy*. 29:85-100.

### **Book Chapters**

- ElSayed AI, **Omar AA** (2022) Physiological and Molecular Stress Responses in Sugarcane. In: Gaur RK (ed) Omics Approaches for Sugarcane Crop Improvement. CRC Press, Boca Raton, FL, USA, pp 181-190. <https://doi.org/10.1201/9781003292425-10>
- Soriano L, **Omar AA**, Martinelli AP (2022) Citrus Protoplast Isolation and Plant Regeneration Through Somatic Embryogenesis. In: Ramírez-Mosqueda MA (ed) Somatic Embryogenesis: Methods and Protocols. Springer US, New York, NY, pp 111-126. [https://doi.org/10.1007/978-1-0716-2485-2\\_9](https://doi.org/10.1007/978-1-0716-2485-2_9)

- Omar AA**, ElSayed AI, Mohamed AH (2021) Genetic diversity and ecotypes of *Opuntia* Spp. In: Ramadan MF, Ayoub TEM, Rohn S (eds) *Opuntia* spp.: Chemistry, Bioactivity and Industrial Applications. Springer Nature, Switzerland AG. [https://doi.org/10.1007/978-3-030-78444-7\\_8](https://doi.org/10.1007/978-3-030-78444-7_8)
- Omar AA**, ElSayed AI, Mohamed AH (2021) Tangerine (*Citrus reticulata* L.) Wastes: Chemistry, Properties and Applications. In: Ramadan MF, Farag MA (eds) Mediterranean Fruits Bio-wastes. Springer Nature, Switzerland. [https://doi.org/10.1007/978-3-030-84436-3\\_11](https://doi.org/10.1007/978-3-030-84436-3_11)
- Alam-Eldein SM, Omar AEK, Ennab HA, **Omar AA** (2021) Cultivation and Cultural Practices of *Opuntia* spp. In: Ramadan MF, Ayoub TEM, Rohn S (eds) *Opuntia* spp.: Chemistry, Bioactivity and Industrial Applications. Springer Nature, Switzerland AG. [https://doi.org/10.1007/978-3-030-78444-7\\_6](https://doi.org/10.1007/978-3-030-78444-7_6)
- Alam-Eldein SM, **Omar AA**, Ennab HA (2021) Harvest and postharvest technology of *Opuntia* spp. In: Ramadan MF, Ayoub TEM, Rohn S (eds) *Opuntia* spp.: Chemistry, Bioactivity and Industrial Applications. Springer Nature, Switzerland AG. [https://doi.org/10.1007/978-3-030-78444-7\\_10](https://doi.org/10.1007/978-3-030-78444-7_10)
- Omar, A.A.**, M. Dutt, F.G. Gmitter, Jr., and J.W. Grosser. 2016. Somatic Embryogenesis: Still a Relevant Technique in Citrus Improvement. In *In Vitro Embryogenesis in Higher Plants*. Vol. 1359. M.A. Germanà and M. Lambardi, editors. Springer, New York. 289-327.
- Grosser, J.W., and **A.A. Omar**. 2011. Protoplasts – an increasingly valuable tool in plant research. In *Plant Cell Culture, Development and Biotechnology*. R.N. Trigiano and D.J. Gray, editors. Taylor and Francis (CRC Press, LLC), Boca Raton, Florida.

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## PRESENTATIONS

### Research Talks – External

- Omar, A. A.**, Murata, M. M., Chase, C., Graham, J. H., and Grosser, J. W. 2020. Chloroplast Plays a Major Role to Citrus Canker Resistance in Grapefruit Cybrids. *Hortscience*, 55(9), S148. <https://doi.org/10.21273/HORTSCI.55.9S.S1>
- Omar, A. A.**, Dolatsara, E. A., Mohamed, A. H., and Grosser, J. W. 2020. Production and Molecular Characterization of New Lemon Hybrids. In *In Vitro Cellular and Developmental Biology - Animal*. **6th International Research Conference on Huanglongbing (IRCHLB)**, Riverside, CA, March 2019. “Screening transgenic citrus trees for Huanglongbing (HLB) tolerant/resistance”
- American Society for Horticultural Science (ASHS) Annual Meeting**, Las Vegas, Nevada, July 2019. “Production and Molecular Characterization of New Mandarin Hybrids for Fruit Quality Improvement.”
- In Vitro Biology Annual Meeting**, Tampa, Florida, June 2019. “In Vitro Conservation of Shoots and Synthetic Seeds of Brahmi (*Bacopa monnieri* L.)”. and “Developing a Tissue Culture Protocol for the Propagation of Reduced Juvenility Transgenic 'Carrizo' Citrange Rootstock.”
- American Society for Horticultural Science (ASHS) Annual Meeting**, Washington, DC, August 2018. *Metabolic Variations between Grapefruit Cybrid Plants and their Respective Parents*.
- In Vitro Biology Annual Meeting**, St. Louis, Missouri, June 2018. “Metabolic variations in transgenic and non-transgenic ‘W. Murcott’ mandarin.”

- In Vitro Biology Annual Meeting**, Raleigh, North Carolina, June 2017. “*Genetic Transformation Approaches to Improve Citrus Greening Tolerant/Resistance in Citrus Trees*”
- Florida State Horticultural Society (FSHS) Annual Meeting**, Ft. Lauderdale, Florida, June 2017. “*Metabolomics evaluation of newly released HLB-tolerant citrus varieties*”.
- World Congress on In Vitro Biology**, San Diego, California, June 2016. “*Production of three new grapefruit like cybrids confirmed by plant mitochondrial intron, chloroplast, and nuclear DNA markers to improve citrus canker resistance*”
- American Society for Horticultural Science (ASHS) Annual Meeting**, Atlanta, Georgia, August 2016. “*Challenging transgenic ‘W. Murcott’ (Nadorcott) Mandarin containing Xa21 gene against citrus canker pathogen*”.
- International Society of Citriculture (ISC) Meeting**, Brazil, September 2016. “*Tolerance of grapefruit cybrids to citrus canker*”.
- The American Phytopathological Society (APS) Annual Meeting**, Tampa, Florida, August 2016. “*Cybridization: A promising plant resistance for citrus canker control*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, New Orleans, Louisiana, August 2015. “*Targeted gene mutagenesis in Citrus to produce citrus canker resistance*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, New Orleans, Louisiana, August 2015. “*Soil-applied controlled release fertilizer (CRF) treatments impact the health and growth of HLB-infected trees -results from greenhouse and field experiments*”
- In Vitro Biology Annual Meeting**, Savannah, Georgia, June 2014. “*Molecular Characterization of Transgenic ‘W. Murcott’ (Nadorcott) Mandarin Produced Using a Protoplast-GFP Transformation System*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, Orlando, Florida, August 2014. “*Production of three new grapefruit cybrids to improve citrus canker resistance*”.
- International Research Conference on Huanglongbing (IRCHLB) Meeting**, Orlando, Florida, February 2013. “*Screening of transgenic Citrus for HLB resistance*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, Miami, Florida, August 2012. “*Over expression of a  $\beta$ -1,3-glucanase gene in transgenic citrus in efforts to inhibit phloem plugging caused by citrus greening disease (Huanglongbing)*”.
- Florida State Horticultural Society (FSHS) Annual Meeting**, Palm Beach, Florida, June 2012. “*Salinity tolerance of ‘Valencia’ orange trees on allotetraploid rootstocks*”.
- Agriculture Chemistry and Environment Protection Association (ACEPA) Annual Meeting**, Cairo, Egypt, October 2010. “*Citrus Biotechnology*”.
- Agriculture Chemistry and Environment Protection Association (ACEPA) Annual Meeting**, Cairo, Egypt, October 2009. “*Study of transgene expression by phloem-specific promoter in transgenic citrus plant*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, St. Louis, Missouri, July 2009. “*Multiple approaches for genetic engineering of Citrus for disease and pest resistance*”



- The 2<sup>nd</sup> International Citrus Biotechnology Symposium**, Italy, November 2009. “*Progress towards incorporation of antimicrobial peptides for disease resistance in Citrus*”.
- 8<sup>th</sup> Annual Citrus Genomics Conference**, South Padre Island, Texas, April 2009. “*Transgenic approaches to developing resistance to HLB and canker in commercial citrus*”.
- International Society of Citriculture (ISC) Meeting**, China, October 2008. “*Screening transgenic ‘Hamlin’ sweet orange [Citrus sinensis (L.) Osbeck] for resistance to citrus canker*”
- International Society of Citriculture (ISC) Meeting**, China, October 2008. “*Progress towards incorporation of antimicrobial peptides for disease resistance in Citrus*”.
- International Research Conference on Huanglongbing (IRCHLB) Meeting**, Orlando, Florida, March 2008. “*Towards the ultimate solution: genetic resistance to HLB in commercial Citrus*”.
- Florida State Horticultural Society (FSHS) Annual Meeting**, Ft. Lauderdale, Florida, June 2008. “*Combating huanglongbing and canker via genetic engineering of Citrus*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, Orlando, Florida, July 2008. “*Transformation and regeneration of transgenic ‘W. Murcott’ (Nadorcott) Mandarin using a protoplast-GFP transformation system*”.
- National Institute of Subtropical Agriculture, RDA**, Jeju Island, Republic of Korea, November 2007 (Invited speaker). “*Genetic engineering of citrus to improve disease resistance*”
- In Vitro Biology Annual Meeting**, Indianapolis, Indiana, June 2007. “*Protoplast/GFP transformation system: Comparison between endoplasmic reticulum targeting and non-targeting GFP in transgenic citrus*”.
- American Society for Horticultural Science (ASHS) Annual Meeting**, New Orleans, Louisiana, July 2006. “*Comparison between protoplast transformation and co-transformation in ‘Hamlin’ sweet orange [Citrus sinensis (L.) osbeck]*”.
- In Vitro Biology Annual Meeting**, Minneapolis, Minnesota, June 2006. “*Quantitative multiplex real-time PCR as a screening tool for estimating transgene copy number in transgenic citrus*”.
- Southern Section of the American Society of Plant Biologists Annual Meeting**, Daytona Beach, Florida, February 2006. “*Transgenic ‘Hamlin’ sweet orange plants to improve canker resistance*”.

#### **Research Talks – Internal**

- Florida Genetics**, Gainesville, Florida, October 2014. “*Plant mitochondria intron and chloroplast DNA markers confirm new grapefruit cybrids*”.
- 2<sup>nd</sup> Forum of Young Researchers (International and National Best Practices)**, College of Agriculture, Zagazig University, Egypt, March 2010. “*Estimation of Transgene Copy Number in Transformed Citrus Plants by Quantitative Multiplex Real-Time PCR*”.
- 1<sup>st</sup> Forum of Young Researchers (International and National Best Practices)**, College of Agriculture, Zagazig University, Egypt, March 2009. “*Biotechnology and its uses in plant improvement*”.
- Citrus Research and Education Center**, University of Florida, Lake Alfred, Florida, March 2006. “*Biotechnology and its uses in improvement of canker resistance in citrus trees*”.

**Fifth Annual IFAS Graduate Research Symposium**, Gainesville, Florida, March 2005.  
*“Transformation and regeneration of ‘Hamlin’ sweet orange [Citrus sinensis (L.) Osbeck] plants containing Xanthomonas resistance gene from rice using a protoplast/GFP transformation system”.*

**Research Posters – External**

**American Society for Horticultural Science (ASHS) Annual Meeting**, Washington DC, August 2018. *“Metabolic Variations between Grapefruit Cybrid Plants and their Respective Parents”.*

**In Vitro Biology Annual Meeting**, St. Louis, Missouri, June 2018. *“Metabolic Variations in Transgenic and Non-transgenic ‘W. Murcott’ Mandarin”.*

**In Vitro Biology Annual Meeting**, Raleigh, North Carolina, June 2017. *“Genetic Transformation Approaches to Improve Citrus Greening Tolerant/Resistance in Citrus Trees”.*

**International Research Conference on Huanglongbing (IRCHLB) Meeting**, Orlando, Florida, February 2015. *“Production of Mandarin + citrus latipes somatic hybrid citrus rootstocks with potential for improved tolerance/resistance to citrus greening”.*

**In Vitro Biology Annual Meeting**, Tucson, Arizona, June 2015. *“Somatic hybridization and cybridization via protoplast fusion technology for citrus improvement”.*

**The American Phytopathological Society (APS) Annual Meeting**, Pasadena, California, August 2015. *“Study of new grapefruit cybrids for potential citrus canker resistance in Florida”.*

**In Vitro Biology Annual Meeting**, Savannah, Georgia, June 2014. *Developmental regulation of the VvmybA1 transcriptional factor gene of grapevine (Vitis vinifera L.) to produce reporter gene expression free transgenic Citrus”.*

**International Research Conference on Huanglongbing (IRCHLB) Meeting**, Orlando, Florida, February 2013. *“One-for-all: a monoclonal antibody specific to different recombinant proteins in transgenic citrus plants”.*

**International Research Conference on Huanglongbing (IRCHLB) Meeting**, Orlando, Florida, March 2008. *“Phloem specific transgene expression of anti-bacterial genes driven by AtSUC2 gene promoter in transgenic citrus plants to develop citrus greening resistance”*

**The World Congress on In Vitro Biology**, Tucson, Arizona, June 2008. *“Phloem specific transgene expression driven by AtSUC2 gene promoter in transgenic Citrus plants to develop citrus greening resistance”.*

**Plant & Animal Genomes XIV Conference**, San Diego, California, January 2006. *“Using real-time PCR as a screening tool for estimating transgene copy number in transgenic citrus at early stage”.*

**In Vitro Biology Annual Meeting**, Baltimore, Maryland, June 2005. *“Transgenic ‘Hamlin’ sweet orange plants containing a rice Xa21 cDNA gene obtained by protoplast/GFP transformation”.*

**1<sup>st</sup> International Citrus Canker and Huanglongbing Research Workshop**, Orlando, Florida, November 2005. *“Expression of Xa21 Xanthomonas resistance gene from rice into transgenic ‘Hamlin’ sweet orange plants”.*

**International Symposium on Biotechnology of Temperate Fruit Crops and Tropical Species**, Daytona Beach, Florida, October 2005. “*Protoplast transformation and regeneration of transgenic ‘Hamlin’ sweet orange plants containing a cDNA Xa21 Xanthomonas resistance gene and GFP*”.

**In Vitro Biology Annual Meeting**, San Francisco, California, May 2004. “*Transfer of cDNA of the Xa21 Xanthomonas resistance gene from rice into ‘Hamlin’ sweet orange [Citrus sinensis (L.) Osbeck] using a protoplast/GFP transformation system*”.

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## TEACHING EXPERIENCE

### College Level (Graduate program)

**research Assistant Scientist** PLP6905 Independent study “*Citrus Tissue Culture*” Fall 2019  
Plant Pathology Department, University of Florida

**Visiting Scientist** *Methods and Applications of Plant Cell and Tissue Culture* 2012-2017  
Horticultural Sciences Department, University of Florida

- Helped Dr. Jude W. Grosser to present a 1-hour lecture and 2-hour laboratory demonstration on citrus protoplast techniques in Dr. Gloria Moore’s graduate class (HOS-6373C)

**Assistant Professor** Department of Biochemistry, College of Agriculture, Zagazig University, Egypt

<i>Chemical Principle of Genetic Engineering</i>	Spring 2011
<i>Chemical Principle of Tissue Culture</i>	Fall 2010
<i>Physiological Biochemistry (Plant)</i>	Spring 2010
<i>Advanced Chemistry of Nucleic Acids</i>	Spring 2010
<i>Advanced Biochemistry of Proteins</i>	Fall 2009
<i>Chemistry of Amino Acids</i>	Fall 2009
<i>Chemistry of Natural Products (50% of the course)</i>	Spring 2009
<i>Chemistry of Enzymes (50% of the course)</i>	Spring 2009
<i>Computer Skills in Biochemistry</i>	Spring 2009

### **Teaching roles and responsibility:**

- Taught lecture and lab for graduate students, was solely responsible for course content
- Developed lab exercise based on my dissertation research where students cloned different genes into plant transformation vector for either *Agrobacterium* or protoplast transformation
- Developed bioinformatics lab exercise based on tools publicly available on the web
- Evaluated highly by students for stimulating independent thinking and for demonstrating an interest in them
- Developed lab exercise based on my research where students initiated and maintained embryogenic callus of citrus varieties
- Evaluated highly by students for stimulating independent thinking and for demonstrating an interest in them
- Led discussion of research articles
- Developed lab exercise based on my research where students studied the effect of different carbon source on the development of embryos
- Developed lab exercise based on my research where students isolated, purified and analyzed DNA and RNA from different plant tissues

- Evaluated highly by students for stimulating independent thinking and for demonstrating an interest in them
- Developed lab exercise where students isolated and analyzed proteins using different techniques
- Developed lab exercise where students studied the chemical reaction of the amino acid functional groups
- Developed lab exercise where students learned to use different computer software in biochemistry

### **College Level (Undergraduate program)**

**Assistant Professor** Students of Department of Biochemistry, Department of Genetics, Food Science Department, College of Agriculture, Zagazig University, Egypt

<i>General Biochemistry</i>	Spring 2011
<i>Chemistry and Biosynthesis of Protein</i>	Fall 2010
<i>Chemistry of Nucleic Acids</i>	Spring 2010
<i>Biochemistry (Special)</i>	Fall 2009

#### **Teaching roles and responsibility:**

- Taught lecture for undergraduate students, was solely responsible for course content
- Supervised teaching assistant for lab exercises
- Led discussion of research articles
- Developed lab exercise based on my research where students isolated, purified and analyzed DNA and RNA from different plant tissues

**Course Assistant** Department of Biochemistry, College of Agriculture, Zagazig University, Egypt

<i>Analysis of Biological liquid</i>	Fall 1999
<i>Instrumental Chemical Analysis</i>	Spring 1998

#### **Teaching roles and responsibility:**

- Lectured when the professor was out of town
- Led discussion of research articles

**Teaching Assistant** Department of Biochemistry, College of Agriculture, Zagazig University, Egypt

<i>Analysis of Agriculture by-Product (Filed and Industry)</i>	Spring 1999
<i>Inorganic and Analytical Chemistry</i>	1995-1997
<i>Organic Chemistry and General Biochemistry</i>	1995-1998

#### **Teaching roles and responsibility:**

- Supervised semi-independent research projects on the analysis of different agricultural by product
- Taught lab for undergraduate students
- Taught lab for undergraduate students
- Supervise students experiments

### **K-12**

**Scientist Volunteer** *Jewett Middle School Academy* 2016-2019  
Polk County, Winter Haven, Florida

- Invited to give a lecture to middle school students about genetically modified organisms

- Demonstrated genetic engineering techniques to improve disease resistance in Citrus
- Guided students for lab and greenhouse tours at Citrus Research and Education Center, University of Florida, Lake Alfred

### **Teaching Interests**

Biochemistry, biotechnology, plant propagation, tissue culture techniques, cell and molecular biology, biochemical pathways, bioinformatics and genomics, RNA and protein structure and function, ethical issues in plant biotechnology.

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### **MENTORING EXPERIENCE**

#### **University of Florida, Citrus Research and Education Center**

Mentoring visiting scholar Anas Fadli from Morocco	2019 – 2020
Mentoring Ph.D. visiting student Lamiaa Mahmoud from Egypt	2018 – 2020
Mentoring Ph.D. student Kawther Aljasm from Iraq	2016 – 2020
Mentoring lab technician and greenhouse personal	2011 – Present
Mentored visiting Ph.D. student Nitasha from Pakistan	2018 - 2019
Mentored visiting professor Esam Hussein from Egypt	2018 - 2019
Helped Ph.D. student Mayara Murata, Plant Pathology Department	2014 – 2017
Mentored Ph.D. student Amany Meira from Tanta University, Egypt	2017
Mentored visiting Ph.D. student Rocio Gomez from Argentine	2017
Mentored visiting student Elahe Ahadi from Iran	2014-2017
Mentored visiting Ph.D. student Sadaf Altaf from Pakistan	2012-2015
Mentored visiting Ph.D. student Kai-dong Xie from China	2015
Mentored visiting professor Sunitibala Huidrom from India	2015
Mentored visiting M.Sc. student Nathan Maren from North Dakota	2015

#### **Zagazig University, College of Agriculture, Biochemistry Department, Egypt**

Committee member for M.Sc. and Ph.D. students	2009 – Present
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### **HONORS AND AWARDS**

<b>International Publications Award</b> , Zagazig University, Egypt	2019
<b>International Publications Award</b> , Zagazig University, Egypt	2018
<b>Distinguished Scholar Award</b> , Arab Fund Fellowship Program, Kuwait	2013
<b>International Publications Award</b> , Zagazig University, Egypt	2010
<b>Travel Grant</b> , American Society for Horticultural Science (ASHS)	2006
<b>Best Presentation in Plant Biotechnology</b> , Society of In Vitro Biology (SIVB)	2006
<b>The Wilton R. Earle Award</b> , Society of In Vitro Biology (SIVB)	2006
<b>Ph.D. Scholarship</b> , University of Florida (One and half year)	2005
<b>Ph.D. Scholarship</b> , Ministry of Higher Education, Egypt (Four years)	2000
<b>M.Sc. Scholarship</b> , Zagazig University, Egypt (Three years)	1994
<b>Highest Distinction Awards</b> , Zagazig University, Egypt	1993
<b>Undergraduate Student Awards</b> , Zagazig University, Egypt	1990 – 1993
<b>Ideal Student Awards</b> , College of Agriculture, Zagazig University, Egypt	1992

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### **TRAINING COURSES AND WORKSHOPS**

#### **University of Florida, Gainesville**

Life Sciences Responsible Conduct of Research Course – RCR	January 2018
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Best Practices for Teaching Online Certification	
<i>Engaging Online Learners</i>	February 2018
<i>Creating Student-Centered Assignments</i>	September 2017
<i>Accessible Online Environments</i>	August 2017
Worker Protection Standards	Every year since 2011
Write Winning Grant Proposal Workshop	June 2015
Molecular Cloning and Protein Chemistry	Summer 2003
Methods and Applications of Plant Cell and Tissue Culture	Summer 2002
Transmission Electron Microscopy Techniques	Summer 2002
Introduction to statistical analysis using SAS programming	Fall 2001
Information Techniques in Research	Spring 2000

### **Zagazig University, Egypt**

Faculty and Leadership Development Workshop	
<i>International Publication of Scientific Research</i>	July 2019
<i>Creative thinking skills</i>	July 2019
<i>Effective presentation skills</i>	July 2019
<i>Competitive research projects</i>	July 2019
<i>Quality Assurance &amp; Accreditation</i>	July 2016
<i>How to Compete for a Research Fund</i>	July 2016
<i>Preparation of Research Project</i>	July 2016
<i>Curriculum Design</i>	June 2016
<i>Time &amp; Stress Management</i>	June 2016
<i>Thinking Skills</i>	June 2016
<i>Research Methodology</i>	March 2009
<i>Code of Ethics</i>	March 2009
Preparing the Faculties to be Ideal Members to Teach and do Research	Fall 2010

### **SERVICE TO SCHOOLS AT THE USA**

- Chair of the Industrial Biotechnology Academy, (2019-2020), Lake Gibson Senior High School, Lakeland, Florida.
- Participated in Great American Teaching Day at Jewett Middle Academy School, Winter Haven, Florida
- Participated in St. Joseph Catholic 8<sup>th</sup> Grade Middle School students visit CREC, 1-hour lab/greenhouse tour, and demonstration.
- Participated in North Ridge Middle School (Haines City) students visit CREC, half-hour lab tour.
- Participated in science fair brainstorming session at St. Joseph School, Winter Haven assisted two students with their projects.
- Participated in Geneva Academy students for lab tour/demonstration.
- Participated in North Ridge Christian Academy students for lab tour/demonstration.
- Mentored students from high school with their science fair projects.
- Judged Science Fair and participated in science fair brainstorming session at St. Joseph School, Winter Haven.
- Judged Polk County Regional Science and Engineering Fair, Winter Haven
- Judged Florida State Science and Engineering Fair, Lakeland

- Volunteer at Polk County school board as a parent
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### **PROFESSIONAL MEMBERSHIPS**

- The Society for In vitro Biology 2002 – Present
  - American Society of Horticultural Science 2006 – Present
  - International Society of Citriculture 2004 – Present
  - The Egyptian Society of Agriculture Biochemistry 2000 - Present
  - International Society for Horticultural Science 2005 – 2009
  - Florida State Horticultural Society 2002 – 2009
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### **EDITORIAL BOARD MEMBER**

- American Journal of Plant Physiology 2008 – Present
  - Biotechnology 2006 – Present
  - Asian Journal of Plant Sciences 2006 – Present
  - Asian Journal of Biochemistry 2006 – Present
  - American Journal of Biochemistry and Molecular Biology 2006 – Present
  - International Journal of Forestry Research 2019 – Present
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### **REVIEWING SERVICE FOR SCIENTIFIC JOURNALS**

- African Journal of Biotechnology (AJB)
- Agronomy
- American Journal of Biochemistry and Molecular Biology (AJBMB)
- American Journal of Plant Physiology (AJPP)
- Annals of Agricultural Science
- Annals of Reviews & Research
- Archives of Biological Sciences (ABS)
- Applied Sciences
- Asian Journal of Biochemistry (AJB)
- Asian Journal of Life Science
- Asian Journal of Plant Sciences (AJPS)
- Biotechnology (BTC)
- Biotechnology Progress (BP)
- Cells
- Egyptian Journal of Agronomy (EJA)
- Egyptian Journal of Botany (EJB)
- European Journal of Plant Pathology
- Frontiers in Plant Science
- Forests
- Genes
- HortScience
- Horticulturae
- In Vitro Cellular & Developmental Biology-Plant
- International Journal of Agricultural and Food Research (IJAFR)
- International Journal of Genetics and Molecular Biology (IJGMB)
- International Journal of Molecular Sciences (IJMS)

- International Research Journal of Agricultural Science (IRJAS)
  - Journal of Food Science and Technology (JFST)
  - Journal of Advanced Research
  - Journal of Food Science & Technology
  - Journal of Plant Physiology
  - Molecular Biology Reports (MBR)
  - Pakistan Journal of Nutrition
  - Plant Cell, Tissue and Organ Culture (PCTOC)
  - Plant Signaling & Behavior
  - Plants
  - Scientia Horticultural
  - Sustainability
  - Associate professor promotion package for Academic Council, Umm Al-Qura University, Ministry of Education, Kingdom of Saudi Arabia.
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#### **LANGUAGES**

- English: speak fluently and read/write with high proficiency
  - Arabic: native language
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