

Mustafa R. Morsy

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Education

- Ph.D. (Cell and Molecular Biology), University of Arkansas, Fayetteville, AR
- M.S. (Genetics), Alexandria University, Alexandria, Egypt
- B.S. (Genetics), Alexandria University, Alexandria, Egypt

Positions Held

- Associate Professor, Department of Biological and Environmental Sciences, The University of West Alabama, October 2011-current
- Assistant Professor, Department of Biological and Environmental Sciences, The University of West Alabama, August 2011-September 2014
- Postdoctoral Fellow, The Samuel Roberts Noble Foundation, Plant Biology Division, February 2007-July 2011
- Postdoctoral Research Associate, Department of Biochemistry and Molecular Biology, University of Nevada, Reno, February 2005-January 2007
- Research Specialist, Department of Crop, Soil, and Environmental Sciences, University of Arkansas, Fayetteville, January 2002-December 2004

Honors and Awards

1. Selected as 1 of 24 biology educator nationwide as a developer and partner in Yale Small World Initiative, 2013
2. Listed in the 67th Edition of Who's Who in America, 2013
3. Recipient of the Phi Kappa Phi Love of Learning Award, 2012
4. Award to Becoming the Messenger: A communications skill-building workshop offered by the National Science Foundation, The National Weather Center, Norman, OK, May, 2011
5. Award to Gene Annotation Workshop funded by the National Science Foundation, The Institute of Genome Research (TIGR), July 2005
6. G.O. Mott Outstanding Ph.D. Student, American Society of Agronomy, January 2005
7. Award to Workshop for Structural and Functional Genomics of Crop Plants (1 of 3 scientists), funded by the National Science Foundation, Arizona Genomics Institute, November 2004
8. Travel award for Second International Rice Functional Genomics Meeting, University of Arizona, Tucson, November 2004
9. Travel award to Gordon Research Conference, Salt and Water Stress in Plants, Hong Kong, June 2004

Invited colloquium/seminar series presentations

1. The Small World Initiative: Molecular and Microbial Biology Course for Freshmen, a poster presentation, The 114th American Society for Microbiology Meeting, Boston, MA, May 17–20.
2. USDA-ARS, Southern Regional Research Center, New Orleans, LA, April 14th, 2014
3. Primose club talk, Livingston, AL. March 20th, 2014.
4. Department of Biological Sciences, University Tulsa, Tulsa, OK, October 11, 2013
5. Department of Biological Sciences, Damanhour University, Egypt, October 7, 2013
6. Department of Biology, Saba Pasha University, Egypt, October 6, 2013
7. The 11th International Symposium on Biocontrol and Biotechnology, Alexandria, Egypt, October 5, 2013
8. Department of Biological Sciences, Auburn University, Auburn, AL, September 13, 2013
9. UWA Science Coffee Shop, University of West Alabama, Livingston, September 11, 2013
10. Keystone Symposium, Plant Abiotic Stress and Sustainable Agriculture: Merging Basic Understanding to Food Production, Taos, NM, (January 17–22, 2013)
11. The AAAS SWARM Division Annual Meeting, Tulsa, OK (March 31st - April 4th, 2012)
12. UWA Natural Sciences and Mathematics Faculty Forum (March 16, 2012)
13. The Noble Foundation Metabolomics Mini-symposium, Ardmore, OK (September 2009)
14. The Noble Foundation, Plant Biology Division (September 2006)
15. University of West Alabama, Dept of Biological and Environmental Sciences (February 2006)
16. Chinese Academy of Agricultural Sciences (CAAS), Beijing, China, (June 2004)
17. University of Arkansas Cell and Molecular Biology Symposium, AR, (May 2004)
18. Arkansas Crop Protection Association, Fayetteville, AR, (February 2003)

Peer Reviewed Publications

1. Vaghchhipawala ZE, Vasudevan B, Lee S, **Morsy M**, Mysore KS (2012). *Agrobacterium* May Delay Plant Nonhomologous End-Joining DNA Repair via XRCC4 to Favor T-DNA Integration. *Plant Cell*, 24: 4110-4123
2. **Morsy M**, and Stewart J McD (2012). Expression profiling of two rice (*Oryza sativa*) genotypes differing in chilling tolerance using cDNA-AFLP. B.R. Wells Rice Research Studies. R.J. Norman and K.A.K. Moldenhauer (editors). Arkansas Agriculture Experiment Station Research Series, 600: 78-85
3. Feldman TS, **Morsy M** and Roossinck MJ (2012). Are communities of microbial symbionts more diverse than communities of macrobial hosts? *Fungal Biology*, 116: 465-477
4. **Morsy M**, Oswald J, He J, Tang Y, and Roossinck MJ (2010). Teasing apart a three-way symbiosis: transcriptome analyses of *Curvularia protuberata* in response to viral infection and heat stress. *Biochemical and Biophysical Research Communications* 401: 225-230.
5. **Morsy M**, Gouthu S, Orchard S, Thorneycroft D, Harper J, Mittler R, and Cushman C (2008). Charting Plant Interactomes: Possibilities and Challenges. *Trends in Plant Sciences* 13: 183-191.

6. Laxmi A, Pan J, **Morsy M**, and Chen R (2008). Light plays an essential role in intracellular distribution of auxin efflux carrier PIN2 in *Arabidopsis thaliana*. PLoS ONE 1: 1-11.
7. Ciftci-Yilmaz S, **Morsy M**, Song LP, Coutu A, Krizek B, Lewis M, Warren D, Cushman J, Connolly E, and Mittler R (2007). The EAR-motif of the C2H2 zinc-finger protein Zat7 plays a key role in the defense response of Arabidopsis to salinity stress. Journal of Biological Chemistry 282: 9260-9268.
8. **Morsy M**, Jouve L, Hausman JF, and Stewart J McD (2007). Alteration of oxidative and carbohydrate metabolism under abiotic stress in two rice (*Oryza sativa* L.) genotypes contrasting in chilling tolerance. Journal of Plant Physiology 164: 157-167.
9. **Morsy M**, and Stewart J McD (2006a). OsLti6a Protein-Protein Interaction Is Not Detected by the GAL4 Yeast Two-Hybrid System. B.R. Wells Rice Research Studies 2006. R.J. Norman, J.F. Meullenet and K.A.K. Moldenhauer (editors). Arkansas Agriculture Experiment Station Research Series 550.
10. **Morsy M**, and Stewart J McD (2006b). Functional characterization of OsLti6a using yeast heterologous expression. B.R. Wells Rice Research Studies 2006. R.J. Norman, J.F. Meullenet and K.A.K. Moldenhauer (editors). Arkansas Agriculture Experiment Station Research Series 550.
11. **Morsy M**, Almutairi AM, Gibbons J, Yun SJ, and de los Reyes BG (2005). The *OsLti6* genes encoding low molecular weight membrane proteins are differentially expressed in rice cultivars with contrasting sensitivity to low temperature. Gene 344: 171-180.
12. De los Reyes B, **Morsy M**, Gibbons J, Varma TSN, Antoine W, McGrath JM, Halgern R, and Redus M (2003). A snapshot of the low temperature stress transcriptome of developing rice seedlings (*Oryza sativa* L.) via ESTs from subtracted cDNA library. Theoretical and Applied Genetics 107: 1071-1082.

Manuscripts In Preparation or Submitted

- Armuelles H and **Morsy M**. Discovery of beneficial symbionts associated with wild plants in Alabama.
- Armuelles H, Roossinck MJ and **Morsy M**. Fungal-viral protein interaction improves heat tolerance of symbiotic tomato.
- Anand A, Vaghchhipawala Z, Rojas C, **Morsy M** and Mysore KS. The role of Skp1/Cu¹/F-box E3 ubiquitin ligase in *Agrobacterium*-mediated plant transformation. (Submitted)
- Gouthu S, **Morsy M**, Mittler R and Cushman JC. Identification of *Arabidopsis* interactome using random yeast two-hybrid approach.

Conference Proceeding and Contributed Presentations (UWA only)

1. Clecker B., Armuelles H., Bonham C., and **Morsy M**. (2014) Bio-Boom: Enhancing Crop Production using habitat specific Fungal Endophytes. American Society of Plant Biologist, Portlan, OR July 11-14.

2. Wooley S., Deluca M., Ware-Gilmore F., and **Morsy M.** (2014) The Small World Initiative: An Antibiotic Discovery Based Freshmen Course. American Society for Microbiology Meeting, Boston, MA, May 17–20.
3. Stoelting AC, Al-Hamdani SH, and **Morsy M.** (2014). Selected Physiological Responses of Tomato Plant to Drought and High Temperature as Influenced by Symbiotic Interaction With *Curvularia*. 75th Annual Meeting Program Association of Southeastern Biologists, Spartanburg, SC. Apr 2–5.
4. Knight K, Bonham C., Armuelles H, and **Morsy M.** (2014). Symbiotic Endophytes Could Improve Crop Production. National Conference on Undergraduate Research Council, Lexington, KY, April 3-5.
5. Nelson B., Davis N., Dancy F., Thompson T., Shoup S., and **Morsy M.** (2014). Discovery of Symbiotic Fungal Endophytes and Their Effects on Agricultural Plants. Southern Section of American Society of Plant Biologist, Lexington, KY, March 31- April 1.
6. Knight K, Bonham C., Armuelles H, and **Morsy M.** (2014). Symbiotic endophytes could improve crop production. Southern Section of American Society of Plant Biologist, Lexington, KY, March 31- April 1.
7. Nelson B., Davis N., Dancy F., Thompson T., Shoup S., and **Morsy M.** (2014). Discovery of Symbiotic Fungal Endophytes and Their Effects on Agricultural Plants. Alabama Academy of Science, Auburn, AL, March 13.
8. Knight K, Bonham C., Armuelles H, and **Morsy M.** (2014). Symbiotic Endophytes Could Improve Crop Production. N Alabama Academy of Science Meeting, Auburn, AL, March 13.
9. Clecker B, Armuelles H., Bonham C., and **Morsy M.** (2014). Bio-Boom: Enhancing Crop Production using habitat specific Fungal Endophytes. URS@NSM, Livingston, AL, March 11, (Student awarded the Presidents’s award).
10. Acord L., Deluca M., Ware-Gilmore F., Wooley P.S., and **Morsy M.** (2014). An Antibiotic Discovery Based Freshmen Course. URS@NSM, Livingston, AL, March 11, (Student awarded the Provost’s award).
11. Nelson B., Davis N., Dancy F., Thompson T., Shoup S., and **Morsy M.** (2014). Isolation and Identification of Symbiotic Endophytes and their Biological Impacts on Plants. URS@NSM, Livingston, AL, March 11, (Student awarded the Center of the Black Belt award).
12. Armuelles H., Bonham C., and **Morsy M.** (2014). Enhancement of Crop Productivity via Discovery and Application of Alabama Fungal Endophytes. NSF AL-EpSCOR meeting, Montgomery, AL, Feb. 6-7, 2014.
13. Bonham C., Armuelles H., and **Morsy M.** (2014). Discovery of Beneficial Fungal Endophyte: A Step Toward Sustainable Agriculture. NSF AL-EpSCOR meeting, Montgomery, AL, Feb. 6-7, 2014.
14. Knight K, Bonham C., Armuelles H., and **Morsy M.** (2014). The Plot Thickens: A Virus Improves Production of Tomato Harboring A Fungal Endophyte. NSF AL-EpSCOR meeting, Montgomery, AL, Feb. 6-7, 2014.
15. Bonham C., Armuelles H., Millwood J., and **Morsy M.** (2013) Viral-Fungal Symbionts as Crop-Yield Enhancer. American Society of Plant Biologist, Providence, RI July 20-24.
16. Armuelles H., and **Morsy M.** (2013) Southern Section of American Society of Plant Biologist, Little Rock, Arkansas, April 6-8. (Oral presentation).
17. Bonham C., Armuelles H., Millwood J., and **Morsy M.** (2013) Southern Section of American Society of Plant Biologist, Little Rock, Arkansas, April 6-8.

18. **Morsy M.** Southern Section of American Society of Plant Biologist, Little Rock, Arkansas, April 6-8. (Oral presentation).
19. Bonham C., Armuelles H., Millwood J., and **Morsy M.** (2013) Usage of Fungal/Viral Symbionts to Improve Crop Production. NSF AL-EpSCOR meeting, Montgomery, AL, April 5-6.
20. Armuelles H., and **Morsy M.** (2013) Alabama Endophyte and Environmental Stress Tolerance of Crop Plants. NSF AL-EpSCOR meeting, Montgomery, AL, April 5-6.
21. Millwood J., Bonham C., and **Morsy M.** (2013) A Fungus Containing a Virus Could Be the Answer to Farmers' Woes. NSF AL-EpSCOR meeting, Montgomery, AL, April 5-6.
22. Armuelles H., Bonham C., and **Morsy M.** (2013). Alabama Endophyte and Environmental Stress Tolerance of Crop Plants. Alabama Academy of Science, Samford, AL, March 21. (Student awarded the 3rd place of best poster presentation).
23. Millwood J., Bonham C., and **Morsy M.** (2013). A virus containing fungi could be the answer to the farmers' woes. Alabama Academy of Science, Samford, AL, March 21.
24. Garner SJ and **Morsy M.** (2013). Different faces, different DNA sequences. Alabama Academy of Science, Samford, AL, March 21.
25. **Morsy M.** (2013). The role of fungal and viral symbionts in plant stress tolerance. Alabama Academy of Science, Samford, AL, March 21.
26. Bonham C., Armuelles H., and **Morsy M.** (2013). Usage of Viral and Fungal Symbionts to Improve Crop Production. URS@NSM, Livingston, AL, March 12, (Student awarded the Presidents's award).
27. Millwood J, Bonham C., and **Morsy M.** (2013). A Fungus Containing Virus Could Be the Answer to Farmers' Woes. URS@NSM, Livingston, AL, March 12. (Students awarded the Dean's award).
28. Garner S. and **Morsy M.** (2013). Different Faces, Different DNA Sequences. URS@NSM, Livingston, AL, March 12.
29. Armuelles H., Bonham C., and **Morsy M.** (2013). Alabama Endophyte and Environmental Stress Tolerance of Crop Plants. URS@NSM, Livingston, AL, March 12.
30. Armuelles H and **Morsy M** (2012) Is Curvularia Thermotolerance Virus A Good Virus? The Association of Southeastern Biologists Meeting, Athens, GA (April 4-7).
31. Bonham C., and **Morsy M.** (2013). The use of beneficial fungal endophytes for crop production and stress tolerance improvement. CUR's Posters on the Hill. Washington, DC (April 23-24) (Award of Honorable Mention).
32. Armuelles H and **Morsy M** (2012) Is Curvularia Thermotolerance Virus A Good Virus? URS@NSM, Livingston, AL, March 13, (Student awarded the Provost's award).
33. McHale A, Vaughn R, and **Morsy M** (2012) Discovery of fungal endophytes associated with environmental stress tolerant plants in Alabama. URS@NSM, Livingston, AL, March 13 (Students awarded the Dean's award).

Research Grants

Current Grant

1. Confirmation of the roles of fungal genes in plant stress tolerance. The National Science Foundation, August 2013, amount requested \$548,000.
2. Biology Opportunities and Scholarships for Success (BOSS). The National Science Foundation S-STEM, August 2013, amount requested \$609,000.

3. Bio-BOOM: Boosting Crop Production using Alabama Specific Symbionts. USDA Specialty Crop Block Grant – Farm Bill Program, May 2014, amount requested \$25,000.
4. Plant heat tolerance through cross kingdom interaction. The National Science Foundation, Physiological and Structural Systems Program. Total award: \$114,000 (2011-2014), PI (sub-award from Penn State University)
5. Identification of Fungal Endophyte Valuable to Crop Production. The University of West Alabama Research Grant Program. Total award: \$1000 (2013-2014), PI
6. Molecular and Microbial Biology: A Discovery-Based Biology Class for Freshmen. The University of West Alabama Teaching Excellence Program. Total award: \$1000 (2013-2014), PI

Total: \$1,298,000

Expired Grants

- Alabama endophyte and environmental stress tolerance of crop plants. The University of West Alabama Research Grant Program. Total award: \$1000 (2012-2013), PI
- Stress tolerant plants and associated fungal endophytes of the Black Belt. The University of West Alabama. Total award: \$1000 (2011-2012), PI
- Plant Heat Tolerance through Cross-kingdom Interactions. The National Science Foundation, Physiological and Structural Systems Program. Total award: \$758,000 (2010-2011), Co-PI
- Alteration of *Curvularia protuberata* transcripts due to presence of Curvularia thermal tolerance virus. Department of Energy-Joint Genome Institute Community Sequencing Program. (2009-2010), Co-PI
- Can fungal melanin content alter plant thermotolerance? The Samuel Roberts Noble Foundation Summer Scholar Program. Total award: \$7,000 (2010), PI
- A snapshot of the viral induced transcriptome of the *Curvularia protuberata*. The Samuel Roberts Noble Foundation Summer Scholar Program. Total award: \$6,800 (2009), PI

Total: \$ 835,000

Teaching Experience

On campus Courses: Cell Biology, Genertics, Principles of Biology, Molecular and Microbial Biology, Funstional Genomics, and Plant Fungal Interaction.

Online Course: Molecular Biology, Advanced Cell Biology, Advanced Genetics and Principles of Biotechnology

Professional Societies /Associations

- Yale Small World Inaiiative Partner and developer (2013 - current)
- American Society of Microbiology (2014 - current)
- Council on Undergraduate Research (2012 - current)

- Beta Beta Beta Honor Society (2011 - current)
- Phi Kappa Phi Honor Society (2011 - current)
- International Symbiosis Society (2009 - current)
- American Society of Plant Biologists (2002 - current)

Editorial Board/Reviewer

- Associate Editor of the Journal of Investigative Genomics (2014 - current)
- Associate Editor of the BMC Research Notes (2011- current)
- Reviewer for the Journal of Genomics Insights (2009 - current)
- Reviewer for the Journal of Plant Physiology (2009 - current)

University of West Alabama and Community Services

- Undergraduate Research Symposium Committee member (2011 - current)
- Science Saturdays Outreach Program Director/coordinator (2011 - current)
- Serve as Research Oversight Committee member (2012 - current)
- UWA Science Coffee Shop founder and coordinator (2013 - current)