



Yulin Jia (1965-Present)

Research Plant Molecular Pathologist

**Dale Bumpers National Rice Research Center,
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“Knowledge is the most powerful thing in life, and learning is the most exciting thing in the world.” Yulin Jia, 2006.

Overview

Dr. Yulin Jia is a Plant Molecular Pathologist at the Dale Bumpers National Research, Agricultural Researcher Service, United States Department of Agriculture. His research focuses on gene discovery and utilization including the development of molecular markers to accelerate breeding efforts for improved stress resistance using marker assisted breeding (MAS). He received the USDA ARS Early Career Scientist Award for the Southern Plains Area in 2006 (awarded to a scientist for outstanding work and scientific impact within 10 years of receiving their doctorate). He has published in a multitude of scientific journals and his publications have now been cited over 1000 times. Some his selected publications include:

- Xing, J., Jia, M.H., Correll, J.C., Yuan, L., Deng, H., Jia, Y. 2015. QTL Mapping for Resistance to Rice Blast Disease with Field Isolates of *Magnaporthe oryzae* in the US. *Crop Science*. doi: 10.2135/cropsci2015.02.0077.
- Qi, X., Liu, Y., Vigueira, C., Young, N., Caicedo, A.L., Jia, Y., Gealy, D.R., Olsen, K.M. 2015. More than one way to evolve a weed: parallel evolution of U.S. weedy rice through independent genetic mechanisms. *Molecular Ecology*. 24:3329–3344. DOI: 10.1111/mec.13256.
- Wang, J., Correll, J.C., Jia, Y. 2015. Characterization of rice blast resistance genes in rice germplasm with monogenic lines and pathogenicity assays. *Crop Protection*. 72:132-138.
- Liu, Y., Qi, X., Gealy, D.R., Olsen, K.M., Caicedo, A.L., Jia, Y. 2015. QTLs analysis for resistance to blast disease in US weedy rice. *Molecular Plant-Microbe Interactions*. p. 1-36. doi.org/10.1094/MPMI-12-14-0386-R.
- Liu, Y., Qi, X., Young, N.D., Olsen, K.M., Caicedo, A.L., Jia, Y. 2015. Characterization of resistance genes to rice blast fungus *magnaporthe oryzae* in a “Green Revolution” rice variety. *Molecular Breeding*. 35:52. DOI 10.1007/s11032-015-0256-y.

This interview was conducted in 2015.

Early Life and Career

Yulin Jia traces his interest in rice back to his upbringing in rural China, where he saw many, including his farmer parents, suffer from bouts of crop disease. “I’ve always been interested in plant diseases, because they caused so much crop damage when I was growing up,” Jia says. Although he has spent most of the past 20 years living and working in the United States, Jia, a research plant molecular pathologist at Dale Bumpers National Rice Research Center in Stuttgart, Arkansas, says that his passion to improve the situation in rural China is still the driving force behind his work.

Jia received his certificate of graduation in plant genetics from Xichang University in China, where he worked for an Agronomy Extension Service for the Chinese government. After several years of work there, Jia says he had seen many crop diseases, and a corresponding lack of knowledge about what caused them. “In many remote places, the farmers believed that ghosts or gods were attacking the crops,” he explains. “I was thinking, ‘How can we control the insects and diseases that are causing this harm?’”

After graduating, Jia had the opportunity to participate in an agricultural exchange program in the United States. He began by working in peach and grape orchards in Colorado, but soon became interested in citrus crops; he then moved to Florida, where he worked with a citrus farmer, Robert Edsall. “I was very inquisitive about everything,” Jia recalls. “One day, I was asked to cut down some trees that were infected by a virus. I noticed that only one half of the tree was infected, and that the other half was healthy, and I wanted to know why.” Mr. Edsall took Jia to the University of Florida Citrus Research and Education Center to find out. The scientist there, noting Jia’s inquisitiveness, invited him to join his research efforts, and Mr. Edsall agreed to provide the financial support. Jia agreed, and ended up getting his master’s degree in plant genetics under that professor, Dr. Fred Gmitter.

While earning his master’s degree, Jia became especially interested in controlling plant diseases through genetic improvement. Afterward, he looked for scientists who shared his research interests, and came across Dr. Greg Martin at Purdue University. Jia got a fellowship to work with him at Purdue, where he earned his doctorate in molecular genetics and pathology. After getting his doctorate, Jia had to decide where to focus his efforts; he chose rice, the plant that had inspired his interest in the first place.

Importance of Mentoring to Career

Jia looked for post-doctorate opportunities that would allow him to work with rice; he ended up working with Dr. Barbara Valent, a fungal molecular geneticist and researcher for DuPont Company. Jia helped Valent research rice blast disease, one of the deadliest fungal crop diseases in the world. “One way to control plant diseases is through genetic improvement,” Jia explains. “Working with her [Valent], I helped clone a resistant gene, and we studied how plant resistance genes work, the relationship between host and pathogen.” Jia names Mr. Edsall, Drs. Gmitter, Martin, and Valent, as well as his undergraduate advisors in China, as significant mentors who have nurtured his career growth. “I have been very lucky in my career [regarding mentors]. That is why I am here today,” he says.

Jia interviewed for a number of university faculty jobs after his post-doc. During that time, however, he was invited to give a talk to the United States Department of Agriculture’s (USDA) Agricultural Research Service (ARS). Still wanting to work with rice, Jia thought the USDA’s Dale Bumpers National Rice Research Center was a perfect fit. Jia says the highlight of his career has been working with his current colleagues,

whom he also considers mentors, and his ability to do the research he has always wanted. “I feel very good about my research,” he says. “When I moved to Arkansas, I was able to transfer my interest into research that impacted science, and translate it into a language that can improve rice cultivation. I feel that I am impacting science and helping farmers.”

Mentoring Others

Jia has mentored a diverse array of students, technicians and post-docs through his position with the USDA. “Minorities seem to come to me,” he says, laughing. “I’ve had six African-American female students—one of them still works for the USDA, and many from other countries, including Bangladesh, India, South Korea, Italy, Ethiopia and China.” The University of Arkansas at Pine Bluff is an 1890 land grant institution, and Jia has worked hard to help secure a research grant and other resources for the largely-minority student population. Although Jia loves both his job and the setting he works in, he admits it can be frustrating when others do not seem to share his passion for the subject. “It’s hard to get people to love science as much as I do,” he says. “It’s especially hard to get American kids interested in biology and agriculture. That tends to be a struggle for all scientists in remote areas. Agriculture is so important to people’s lives, but a lot of kids don’t want to go into it.”

Contributions

Jia says that seeing tangible impacts of his work has made his career choice worthwhile. “This is what I wanted to do with my life,” he says. “We spray millions of dollars’ worth of pesticides to prevent plant diseases, you can’t breathe the air during the growing season in some rice growing areas. As scientists, we must come up with strategies for how to deal with this. Today we have many tools to do so, and we must try to use them.” Jia admits that receiving accolades for his work makes the job even more fulfilling: he received the USDA ARS Early Career Scientist Award for the Southern Plains Area in 2006 (awarded to a scientist for outstanding work and scientific impact within 10 years of receiving their doctorate). He has published in a multitude of scientific journals and his publications have now been cited over 1000 times.

Despite these successes, Jia does not believe he has accomplished anything especially important yet. He is proud of the fact that he has gained the trust and respect of his American colleagues and the United States government, and says the most gratifying part of his work is simply being able to learn, and contribute his knowledge to the greater good. “Knowledge is the most powerful thing in life, and learning is the most exciting thing in the world,” he says. For minorities interested in environmental careers, Jia has three pieces of advice: get the highest education possible, work hard, and always remember to help your community and those who surround you. “If you have those three, you’ll do very well,” he says. Finally, “Don’t work for anybody else; work for yourself. Write the history of your own life.”

For More Information

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