

# CHAKRADHAR MATTUPALLI

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## EDUCATION

<i>Institution</i>	<i>Major</i>	<i>Degree</i>	<i>Year</i>
University of Wisconsin-Madison, Madison, WI	Plant Pathology	Ph.D.	2013
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, India	Horticulture	M.Sc.	2002
Acharya NG Ranga Agricultural University, Hyderabad, India	Agriculture	B.Sc.	2000

## RESEARCH EXPERIENCE

**Postdoctoral Fellow**, Noble Research Institute, LLC Feb 2015 – Present  
Supervisor: Dr. Carolyn Young

- Utilizing drones and remote sensing to monitor *Phymatotrichopsis* root rot (PRR) disease in alfalfa hay production fields
- Developed simple sequence repeat markers to identify genetic diversity of *Phymatotrichopsis omnivora* (causal agent of PRR)
- Screened alfalfa and cotton cultivars for resistance to *P. omnivora*
- Developed high-throughput molecular methods for identification of *P. omnivora* from soil and plant samples
- Identified mating type genes from *P. omnivora* genome and demonstrated their distribution utilizing geographic information systems

**Scientist and Product Development Manager**, PhylloTech, LLC Jun 2013 – Jan 2015  
Supervisor: Dr. Ryan Shepherd

- Characterized a novel class of quorum quenching enzyme and tested its efficacy against bacterial pathogens of potato and beans
- Heterologously expressed antimicrobial proteins in bacterial and yeast systems

**Graduate Research Assistant**, University of Wisconsin-Madison Jan 2008 – Jun 2013  
Dissertation advisor: Dr. Amy Charkowski

Dissertation: *Helminthosporium solani*: Biology, occurrence, and control

- Identified *Helminthosporium solani* and *Colletotrichum coccodes* from field grown potato tubers using nested PCR and cultural methods
- Screened two natural plant proteins for their antimicrobial activity against potato fungal pathogens using an inexpensive microfluidic assay
- Developed a minituber assay and identified a breeding line with partial resistance to silver scurf disease
- Conducted field trials on organic potato farms to study surface blemish diseases of potato
- Mined *H. solani* genome and identified a suite of putative genes involved in cell wall degradation

## **GRANTS**

**Mattupalli, C.** Application of simple sequence repeat markers to understand genetic diversity of *Phymatotrichopsis omnivora*.

Funding Agency: Noble Research Institute, LLC. \$10,000. 06/01/2016 – 08/05/2016

**Mattupalli, C.** The enzymatic degradation of quorum-sensing signals to decrease bacterial phyto-pathogenicity.

Funding Agency: USDA- NIFA SBIR Phase I. \$100,000. 06/01/2014 – 01/31/2015

Charkowski, A. O., and Shepherd, R. W. Utilizing phylloplanins for the control of fungal and oomycete pathogens in organic potato farming (*Role: Co-author*).

Funding Agency: The Ceres Trust. \$54,060. 1/1/2012 – 12/31/2012

**Mattupalli, C.,** and Charkowski, A. O. Identifying heirloom and specialty varieties resistant to silver scurf disease for organic potato production.

Funding Agency: The Ceres Trust. \$10,000. 07/1/2011 – 06/30/2012

## **PUBLICATIONS**

Young C. A., Bock, C. H., Charlton, N. D., **Mattupalli, C.**, Krom, N., Bowen, J. K., Templeton, M., Plummer, K. M., and Wood, B. W. 2017. Evidence for sexual reproduction: identification, frequency, and spatial distribution of *Venturia effusa* (pecan scab) mating type idiomorphs. *Phytopathology* (*accepted, in revision*)

**Mattupalli, C.**, Komp, M. R., and Young, C. A. 2017. Integrating geospatial technologies and unmanned aerial systems in growers' disease management toolbox. *APS Features*. doi:10.1094/APSFeature-2017-7.

**Mattupalli, C.**, Moffet, C. A., Rogers, J. K., and Young, C. A. 2016. Drones used to monitor alfalfa root rot disease. *Hay and Forage Grower*. February issue p.22.

**Mattupalli, C.**, Glasner, J. D., and Charkowski, A. O. 2014. A draft genome sequence reveals the *Helminthosporium solani* arsenal for cell wall degradation. *American Journal of Potato Research* 91:517-524. (**awarded Outstanding Paper for the year 2014 by the American Journal of Potato Research**).

**Mattupalli, C.**, Spraker, J. E., Berthier, E., Charkowski, A. O., Keller, N. P., and Shepherd, R. W. 2014. A microfluidic assay for identifying differential responses of plant and human fungal pathogens to tobacco phylloplanins. *Plant Health Progress* 15:130-134.

**Mattupalli, C.**, Genger, R. K., and Charkowski, A. O. 2013. Evaluating incidence of *Helminthosporium solani* and *Colletotrichum coccodes* on asymptomatic organic potatoes and screening potato lines for resistance to silver scurf. *American Journal of Potato Research* 90:369-377.

**Mattupalli, C.**, Khiratkar, S. D., and Rosh, K. 2003. Effect of growth regulators on flower quality and vase life of rose cv. gladiator. *Journal of Soils and Crops* 13:374-377.

## **PRESENTATIONS**

### *Outreach:*

- A picture is worth a thousand words (Noble Research Institute's August All Employee Meeting, 2017; audience size: ~350)
- Understanding a pathogen: Cotton root rot on alfalfa (Noble Research Institute's employees at Dupuy Farms, Ardmore, OK 2017)
- Fungus among us (BRIT [Botanical Research Institute of Texas] teachers who visited the Noble Research Institute, LLC, Ardmore, OK 2017)

### *Oral presentations:*

- The big picture: Understanding a root rot disease through aerial imagery (**Invited speaker**, Department of Entomology & Plant Pathology, Oklahoma State University, Stillwater, OK, 2017)
- Cotton root rot: current understanding and future perspectives (Noble Research Institute, LLC, Ardmore, OK, 2017)
- Utilizing global positioning and geographic information systems for tracking *Phymatotrichopsis* root rot disease in alfalfa (American Phytopathological Society (APS)-Southern Division Annual Meeting, College Station, TX, 2017)
- The big picture: Aerial imagery in disease management (Noble Research Institute, LLC, Ardmore, OK, 2016)
- Monitoring spread of *Phymatotrichopsis* root rot disease in alfalfa fields using aerial imagery (APS Annual Meeting. **Invited symposium speaker**, Tampa, FL, 2016)
- Spread of *Phymatotrichopsis* root rot in alfalfa fields (Noble Research Institute, LLC, Ardmore, OK, 2015)
- Detection of *Helminthosporium solani* and *Colletotrichum coccodes* in organically grown asymptomatic and symptomatic potatoes (APS Annual Meeting, Providence, RI, 2012)
- Interactions between *Fusarium virguliforme* and *Phialophora gregata* in soybean using greenhouse studies (APS Annual Meeting, Charlotte, NC, 2010)

### *Poster presentations:*

- Effect of *Phymatotrichopsis* root rot disease on alfalfa root morphology and forage quality (APS Annual Meeting, San Antonio, TX, 2017)
- Spatio-temporal dynamics of *Phymatotrichopsis* root rot disease in alfalfa hay production fields (7<sup>th</sup> Annual Argonne Soil Metagenomics Meeting, Lisle, IL, 2015)
- Silver scurf disease of potato: current understanding and its implications (UW Extension and WPVGA Grower Education Conference, Stevens Point, WI, 2013)
- Effect of co-inoculation of *Fusarium virguliforme* and *Phialophora gregata* on soybean (North Central Division Meeting of APS, Ames, IA, 2009)

## **MANAGERIAL EXPERIENCE**

Assistant Manager (Rural Development), Andhra Bank, Hyderabad, India (2003-2007)

- In charge of rural credit portfolio with expertise in farm credit & mechanization, retail and personal banking segments
- Interacted with at least 20 diverse growers daily and built a strong customer base in the branch's area of operation

### **AWARDS AND HONORS**

- American Phytopathological Society (APS)-Southern Division Student/Post-Doc Travel Award (2017)
- Schroth Faces of the Future-Early Career Professional Symposium Speaker (2016)
- APS Foundation John S. Niederhauser Student Travel Award (2012)
- Albert J. and Adelaide E. Riker Plant Pathology Graduate Award (2012)
- APS Foundation Don E. Mathre Student Travel Award (2010)
- William T. Dible – Terra International Inc. Scholarship (2010)
- APS-North Central Division Student Travel Award (2009)
- 3<sup>rd</sup> Place, Graduate Student Poster Presentation, North Central Division meeting of the APS (2009)
- 2<sup>nd</sup> Place, APS Art in Phytopathology (2009)
- Dr. Panjabrao Deshmukh Birth Centenary Gold Medal (2004)
- Barrister Sheshrao Wankhede Gold Medal (2004)
- Annasaheb Mahajani Cash Prize (2004)
- Madhao Gangadhar Bhumralkar Horticulture Cash Prize (2004)
- Neelamraju Gangaprasad Rao and Kamala Gold Medal (2002)

### **PROFESSIONAL INVOLVEMENT**

- Reviewer, American Phytopathological Society Student Travel Awards (2017, 2016, 2011)
- Associate Editor, *Plant Disease* (2016 – Present)
- Public Policy Board Early Career Intern, American Phytopathological Society (2016 – Present)
- Postdoc/Research Scientist Representative, Noble Research Institute, LLC (2015 – 2017)
- Ad hoc reviewer (2014 – 2016)  
*American Journal of Potato Research, Annals of Applied Biology, Australasian Plant Pathology, European Journal of Plant Pathology, Letters in Applied Microbiology, Mycologia, Phytopathology, Plant Health Progress, and Potato Research*
- Student representative, Mycologist Search Committee, University of Wisconsin - Madison (2012)

### **MENTORING EXPERIENCE**

- Summer undergraduate intern (2016)  
Project: Processing *Phymatotrichopsis* root rot aerial imagery
- Noble summer scholar (2016)  
Project: Application of simple sequence repeat markers to understand genetic diversity of *Phymatotrichopsis omnivora*
- Research technician (2015-16)  
Project: Identification of *P. omnivora* from field samples and understanding carbon utilization patterns of *P. omnivora*
- Summer undergraduate intern (2015)  
Project: Monitoring *Phymatotrichopsis* root rot disease spread in alfalfa hay production fields
- Undergraduate student (2013)  
Project: Mining *Helminthosporium solani* genome for genes involved in cell wall degradation
- Summer undergraduate intern (2012)  
Project: Screening potato minitubers for resistance to silver scurf disease

### **TEACHING EXPERIENCE**

Teaching Assistant, Department of Plant Pathology, University of Wisconsin-Madison (2009)

*Course:* Plant Pathology 123: Plants, Parasites and People

- Responsible for managing two teaching laboratories of about 16 non-science majors each
- Design and grade homework assignments and tests
- Deliver 15-20 minute presentations providing background information that integrates classroom course content with laboratory techniques

### **PROFESSIONAL LICENSES**

- Oklahoma Pesticide Certified Applicator (2017)
- Remote Pilot Certificate with a small Unmanned Aircraft Systems (sUAS) rating (2017)