

Shideh Mojerlou

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EDUCATION

2015- Now

Assistant Professor, Shahrood University of Technology, Shahrood, Iran

August 2018

Visiting scientist at CSIRO, Australia with Dr. Wolfgang Spielmeier

2009 - 2014

PhD in Plant Pathology,

Mycology and Plant Fungal Diseases, Tarbiat Modares University, Tehran, Iran

April-November 2013

Sabbatical at CSIRO, Australia with Dr. Wolfgang Spielmeier

2005-2008

MS in Plant Pathology (First grade), Tarbiat Modares University, Tehran, Iran

2000-2004

BS in Plant Protection (First grade), Mazandaran University, Sari, Iran

RESEARCH PROJECTS UNDERTAKEN

Visiting scientist project on “mapping of leaf rust resistance gene Lr31”: The group at CSIRO previously developed mutants which were susceptible to leaf rust. During my stay I contributed to the progeny testing of these mutants with specific races in collaboration with colleagues at Cobbitty Plant Breeding Institute Uni Syd. I extracted DNA from the plants which were phenotyped to analyze with PCR based markers derived from target region on chromosome 4B. Using the bioinformatics skills of colleagues at CSIRO, we identified one NB-LRR gene within the target region which was a good candidate for Lr31. I sequenced the gene in two additional mutants that were not deleted for this region but could not find any DNA changes that could explain loss of leaf rust resistance. The project is going on.

PhD Thesis on “Evaluation of reaction and genetics of resistance to stem rust disease in some accession of Iranian wheat landraces”: In this project, we evaluated selected Iranian wheat landraces against *Puccinia graminis* f.sp. *tritici* race Ug99 in the greenhouse, and analyzed the included resistance genes in compatible and incompatible interactions by SSR markers. Also, we evaluated defense gene expression (β -1,3-glucanase) in compatible and incompatible wheat-stem rust interactions.

Sabbatical Project on “Non-host resistance of Barley to wheat stripe rust”: In this project, selected Australian barley lines that are resistant or susceptible against wheat stripe rust were examined macroscopically and microscopically. Resistant lines were crossed with susceptible lines and BC1 populations were phenotyped for single gene

segregation. Resistant lines were treated with chemical mutagen and M2 families screened for susceptible mutants.

Master's Thesis on "Epidemiological studies of Septoria leaf blotch caused by Septoria tritici": In this study, we evaluated appropriate models for prediction of temporal progress of wheat septoriosiis caused by *Zynoseptoria tritici*, and determined yield reduction in Golestan province of Iran. Also, the interactions of some isolates of *Septoria tritici* with various wheat cultivars were analysed in glass house-based screening.

RESEARCH INTERESTS

I am interested in plant- fungal pathogens interaction, exploring the genetic, cytological and molecular bases of diseases and resistance to host and non-host fungi in plants and applying new molecular methods to introduce resistant plants.

RESEARCH SKILLS

- **Microbiological methods** including sterilization, culture media preparation, fungal and bacterial isolation and purification techniques, morphological and molecular identification of plant diseases
- **Molecular biology methods** including DNA extraction (Plant, Fungi, Bacteria), PCR, real-time PCR, Molecular markers (KASP, SSR, ISSR, RAPD), Electrophoresis, PAGE, SDS-PAGE, ELISA, TLC
- **Data analysis** including phylogenetic analysis and bioinformatics (R, MSTATC, MVSP, NTSYS, STATGRAPHIC, NEUROSOLUTION, MEGA, CHROMAS, GENEDOC, MEGALIGN, Editseq, SPSS)
- **Molecular Cytology** (staining and microscopy)
- **Field Phenotyping** of wheat foliar diseases including Septoria leaf blotch and rust diseases and selecting plants for breeding

TEACHING/ SUPERVISION SKILLS

- **PhD Degree** (practical course of Epidemiology, practical course of Mycology)
- **MSc degree** (Plant disease management, Biotechnology and practical course of Research Methods, Plant disease management in greenhouse condition)
- **BSc Degree** (Mycology, Plant Diseases, Field crop diseases, Plant disease management, Fruit tree diseases, Bacteriology)

SCHOLARSHIPS/AWARDS RECEIVED

- Travel scholarship of BGRI for short visiting of CSIRO August, 2018, ACT, Australia.
- Scholarship of JIC and PAU for "soft skills workshop in scientific communication" 21-24 March, 2017, PAU, India
- Scholarship of BGRI for "CIMMYT WIT Training" March, 2016, CIMMYT, Mexico.
- Women in Triticum Award, 2015 from BGRI, Cornell University
- Scholarship of CIMMYT and BGRI for "2014 BGRI workshop and wheat Summit" 22-28 March, Obregon, Mexico
- Scholarship of BGRI for "International Plant Breeding Congress "10-14 Nov, 2013, Antalya, Turkey

- Scholarship of Ministry of Science and Technology of Iran to stay for 6 months on sabbatical at CSIRO, Australia

LIST OF RESEARCH PUBLICATIONS

A. Peer-reviewed Research Articles

1. **Mojerlou Sh.**, Safaie N., Abbasi Moghadam A. and Shams-bakhsh M. (2020). Characterizing resistance genes in wheat-stem rust interaction. *Journal of Agricultural Science and Technology*, 22(6):1629-1644.
2. Rezaee S., Gharanjik Sh., **Mojerlou Sh.** (2020). Structure and upstream region analysis of Phenylalanine ammonia-lyase gene in rice (*Oryza sativa* L. ssp. japonica) and cucumber (*Cucumis sativus* L. cv. Chinese long). *Archives of Phytopathology and Plant Protection*, <http://doi.org/10.1080/03235408.2020.1740504>.
3. Keramat M., Mahboubi Z., Heydari F., **Mojerlou Sh.** and Pedram M. (2020). Amendment to the diagnosis of *Aphelenchoides salixae* Esmaeili et al., 2017 (Nematoda: Aphelenchoididae). *Nematology* 22: 123-124.
4. Rahgo Z., Samadlouie H.R., **Mojerlou Sh.** and Jahanbin K. (2019). Statistical Optimization of Culture Conditions for Protein Production by a Newly Isolated *Morchella fluvialis*. *BioMed Research International* 2019: 1-9.
5. Panahandeh Y, Pourjam E., Abolafia J., Roshan-bakhsh A., **Mojerlou Sh.**, Jahanshahi Afshar F. and Pedram M. (2019). *Labrys khuzestanensis* n. sp. (Nematoda, Tylenchidae), a new member of the genus with large labial plate. *Zootaxa* 4671 (2): 267–276
6. **Mojerlou Sh.** and Shahzbazi S. (2019). The synergistic interactions of cellulase enzyme activities of *Trichoderma* species in colloidal cellulose bioconversion. *Journal of Crop Protection* 8(3): 323-337.
7. Zamani S.M. and **Mojerlou Sh.** (2019). Phenotypic and Genotypic Diversity of Boxwood Blight Causal Agent Populations in Iran. *Journal of Plant Research*, Available online from 15 July 2019. (In Farsi)
8. Karimi H., Bodaghi H., Rajaei A. and **Mojerlou Sh.** (2019). Study of enhanced antifungal activity and stability of nanoencapsulation of Thyme vulgaris essential oil against *Botrytis cinerea* in red shahroodi grape (*Vitis vinifera* CV. Red). *Iranian Food Science and Technology Research Journal*, Available online from 1 March 2019. (In Farsi)
9. Rezaee S., Gharanjik Sh., **Mojerlou Sh.** (2018). Identification of *Fusarium solani* f. sp. *cucurbitae* races using morphological and molecular approaches. *Journal of Crop Protection* 7 (2): 161- 170.
10. Eslahi MR., **Mojerlou Sh.** (2018). Evaluation the efficiency of Falcon® fungicide to control wheat leaf blotch caused by *Mycosphaerella graminicola*. *Research in Plant Pathology* 5 (2): 13-22 (In Farsi).
11. Bagheri Kh., Shahbazi S., Askari H., **Mojerlou Sh.**, Amirlou F. (2018). Cellulase enzyme production enhancement in *Trichoderma viride* by Gamma ray induced mutation. *Nova Biologica Reperta* 4 (4): 329-336 (In Farsi).
12. Eslahi M. R. and **Mojerlou Sh.** (2016). Modeling of crop loss caused by *Puccinia striiformis* f. sp. *tritici* in three common wheat cultivars in southern Iran. *Journal of Crop Protection* 5 (3): 389-395.
13. Shahbazi S., Askari H., **Mojerlou Sh.** (2016). The impact of different physicochemical parameters of fermentation on extracellular cellulolytic enzyme production by *Trichoderma harzianum*. *Journal of Crop Protection* 5 (3): 397-412.

14. **Mojerlou Sh.**, Safaie N., Abbasi Moghadam A. and Shams-bakhsh M. (2015). PCR-based characterization of *Puccinia graminis* f. sp. *tritici* race TTSSK from Iran. *Journal of Crop Protection* 4 (3): 321-328.
15. **Mojerlou, Sh.**, Mousanejhad, S. and Safaie, N. (2013). Modeling fluctuation of *Pyricularia grisea* spore population as affected by meteorological factors in Guilan province (Iran) using artificial neural network. *Journal of Crop Protection* 2 (4): 501-514.
16. **Mojerlou Sh.**, Safaie N, Abbasi Moghadam A. and Shams-bakhsh M. (2013). Evaluation of some Iranian wheat landraces resistance against stem rust disease new race at seedling stage. *Crop protection*, 35 (4), 69-81 (in Farsi).
17. **Mojerlou, Sh.** and Safaie, N. (2012). Phylogenetic analysis of *Alternaria* species associated with citrus black rot in Iran. *Journal of plant pathology and microbiology*, 3:144. Doi:10.4172/2157-7471.1000144.
18. **Mojerlou Sh.**, Safaie N., Alizadeh A. and Khelghatibana F. (2010). Temporal Analysis of Wheat Leaf Septoriosi s Epidemics. *Agricultura Tropica et Subtropica*, 43 (4): 266-276.
19. **Mojerlou Sh.**, Safaie N., Alizadeh A. and Khelghatibana F. (2010). Comparison of Double-digit index and Disease severity in disease progress of wheat septoriosi s (*Septoria tritici*) using Artificial Neural Network. *Trakia Journal of Science*, 8 (4): 62-66.
20. **Mojerlou Sh.**, Safaie N., Alizadeh A. and Khelghatibana F. (2009). Measuring and modeling crop loss of wheat septoria leaf blotch in seven cultivars and lines in Iran. *Journal of Plant Protection Research*, 49(3): 284-288.
21. **Mojerlou Sh.**, Safaie N., Alizadeh A. and Khelghatibana F. (2009). Study of latent period and interaction between different *Septoria tritici* genotypes and different wheat cultivars and lines in greenhouse. *Trakia Journal of Science*, 7(4): 7-17.

B. Publications in Conferences/Symposia/Seminars

- 1- **Mojerlou Sh.** and Nosrati M. (2019). Effect of Methanol extract of *Urtica dioica* on fungal plant pathogens *in vitro*. 4thIranian Mycological Congress, 26-28 August 2019, Sari Agricultural Sciences and Natural Resources University, Iran.
- 2- Moghaddasi M., Rahnama K., **Mojerlou Sh.** and Aghapour B. (2019). Identification of *Rhizoctonia solani* anastomosis groups from potato in Shahrood rejoin. 4thIranian Mycological Congress, 26-28 August 2019, Sari Agricultural Sciences and Natural Resources University, Iran.
- 3- Aghajani H., Tajick Ghanbary M. A., **Mojerlou Sh.** and Habibi M. (2019). Introduction of some endophytic fungi of wild service tree (*Sorbus torminalis*) in Hyrcanian Forests, Mazandaran. 4thIranian Mycological Congress, 26-28 August 2019, Sari Agricultural Sciences and Natural Resources University, Iran. Page 115.
- 4- Zamani SM., **Mojerlou Sh.**, Ghamari Zare A. (2018). Repetitive elements sequence (REP/ERIC)-PCR based genotyping of Iranian isolates of *Cylindrocladium buxicola* Henricot. 3rd International and 15th Iranian Genetics congress. May 13-15, Tehran, Iran.
- 5- Eskandari Z., Safaie N., **Mojerlou Sh.** (2018). Identification of Endophytic Species of *Chaetomium* in Amaranthus. 1st national congress of Horticulture and Crop production. January 25, Gonbad, Iran.
- 6- Eskandari Z., Safaie N., **Mojerlou Sh.** (2018). Identification of Endophytic Species of *Fusarium* in Amaranthus. 1st national congress of Horticulture and Crop production. January 25, Gonbad, Iran.

- 7- **Mojerlou Sh.**, Dorostkar V., Mohammadi A. (2017). Evaluation of pathogen population in soil under sunflower debris treatment. 3rd Iranian Mycological Congress, 26-28 August, University of Kurdistan, Sanandaj, Iran. P. 169.
- 8- Dorostkar V., **Mojerlou Sh.**, Mohammadi A. (2017). Soil dispersible clay content variations in the presence of two filamentous fungi (*Macrophomina phaseolina* , *Fusarium graminearum*). 15th Iranian soil science congress. 28-30 August, Isfahan University of Technology, Isfahan, Iran.
- 9- Rezaee S., Gharanjik Sh., **Mojerlou Sh.** (2017). In silico study of promoter region of effective genes in host-pathogen compatible and incompatible interaction. 2nd international and 10th national biotechnology congress of Iran. 29-31 August, Karaj, Iran.
- 10- **Mojerlou Sh.**, Nosrati M. and Abdollahi M. (2017). Investigation Antifungal Activity of *Urtica dioica* Ethanol Extracts *in vitro*. 2nd National congress of Monitoring and Forecasting in Plant Protection. 9 March, Gonbad, Iran.
- 11- Bodaghi H., **Mojerlou Sh.**, Ghasimi Z., Baninajar E. (2017). Inhibitory effect of alcohol extract of *Proveskia abrotanoides* on *Macrophomina phaseolina* and *Fusarium graminearum*. National Congress of Medicinal Plant, 8-9 March, Shahrood University of Technology, Shahrood, Iran. **(Oral Presentation)**
- 12- **Mojerlou Sh.**, Bodaghi H., Hosseinpour E. and Araskhalaji S. (2017). Evaluation effect of *Proveskia abrotanoides* methanol extract on fungal plant pathogens *in vitro*. National Congress of Medicinal Plant, 8-9 March, Shahrood University of Technology, Shahrood, Iran.
- 13- **Mojerlou Sh.**, Safaie N., Shams-Bakhsh M. and Abasi-Moghadam A. (2015). Resistance to wheat stem rust in selected accessions of Iranian wheat landraces. BGRI workshop 17- 20 September, Sydney, Australia.
- 14- Taherpour kolaei S., Tajik Ghanbari M.A., Babaeizad V. and **Mojerlou Sh.** (2014). Enzymatic changes in compatible and incompatible interactions Bean- Alternaria leaf spot. First e-conference on new finding in environment and agricultural ecosystems, 1st November, Tehran, Iran.
- 15- **Mojerlou Sh.**, Safaie N, Abbasi Moghadam A. and Shams-bakhsh M. (2014). Study of β -1,3 glucanase gene expression in wheat-stem rust interactions using Realtime-PCR. First International and 13th Iranian Genetics congress, 24-26 May, Tehran, Iran.
- 16- **Mojerlou Sh.**, Ayliffe M., Dracatos P., Mago R. and Spielmeyer W. (2013). Non-host resistance to wheat stripe rust in barley. International Plant Breeding Congress, 10-14 November, Antalya, Turkey.
- 17- **Mojerlou Sh.**, Abbasi Moghadam A., Safaie N. and Shams-bakhsh M. (2012). Evaluation of some Iranian wheat landraces resistance against stem rust disease at seedling stage in the green house. 20th Iranian Plant Protection Congress, 25-28 August, Shiraz, Iran.
- 18- **Mojerlou Sh.**, Safaie N, Abbasi Moghadam A. and Shams-bakhsh M. (2012) Molecular studies on effective resistance genes against Ug99 in some Iranian wheat landraces. 17th National and 5th International Iranian Biological Conference, 4-6 September, Kerman, Iran.
- 19- **Mojerlou Sh.**, Abbasi Moghadam A., Safaie N. and Shams-bakhsh M. (2012) Resistance to wheat stem rust race Ug 99 in selected accessions of Iranian wheat landraces. International Cereal Rust and Powdery Mildew Cinferece, 28 August- 1 sep., Beijing, China.

- 20- Moradmam M., **Mojerlou Sh.** and Safaie N. (2012) Study the fingerprinting pattern of *Bipolaris oryzae* using URP-PCR in Guilan province. 17th National and 5th International Iranian Biological Conference, 4-6 September, Kerman, Iran.
- 21- **Mojerlou, Sh.**, Mousanejhad, S., Safaie, N and Alizadeh, A. (2012) Model of relationship between *Pyricularia grisea* spore populations and meteorological factors by Artificial Neural Network in Guilan province. 1st National Congress of Forecasting in Plant Protection, 14-15 February, Borujerd; Iran.
- 22- **Mojerlou, Sh.** and Safaie, N. (2011) Phylogenetic analysis of citrus black rot-4-associated *Alternaria* species in Iran. Asian Mycological Congress, 7-11 August, Incheon, Korea.
- 23- **Mojerlou, Sh.** and Safaie, N. (2011) Interaction between Orange and post harvest disease, *Alternaria* rot. 7th congress of Iranian Horticultural Science, 5-8 September, Isfahan, Iran.
- 24- Mousanejhad, S., **Mojerlou, Sh.**, Alizadeh, A. and Safaie, N. (2010) Study of relationship between rice blast severity and meteorological factors using Artificial Neural Network in Guilan province. 19th Iranian Plant Protection Congress, 31 July-3 August, Tehran, Iran.
- 25- **Mojerlou, Sh.**, Safaie, N., Alizadeh, A., Khelghatibana, F. and Dehghan, M.A. (2008) Temporal Progress analysis of wheat Septoriosiis Epidemics caused by *Septoria tritici* under greenhouse and field conditions. 18th Iranian Plant Protection Congress, 24-27 August, Hamedan, Iran.
- 26- **Mojerlou, Sh.**, Safaie, N., Alizadeh, A. and Khelghatibana, F. (2008) The study of temporal progress of wheat Septoriosiis caused by *Septoria tritici* using Artificial Neural Network. 18th Iranian Plant Protection Congress, 24-27 August, Hamedan, Iran.
- 27- **Mojerlou, Sh.**, Safaie, N., Alizadeh, A. and Khelghatibana, F. (2008) Effect of Septoriosiis on 1000 Kernels weight reduction in different wheat cultivars. 1st seed science and technology congress, 12-13 November, Gorgan, Iran. (**Oral Presentation**).
- 28- **Mojerlou, Sh.**, Safaie, N., Alizadeh, A. and Khelghatibana, F. (2008). Study of Interactions between Different *Septoria tritici* Genotypes and Different Wheat Cultivars and Lines in Greenhouse. 2nd National Congress of Cellular and Molecular Biology, 29-30 January, Kerman, Iran.