Aria Dolatabadian

Biography

Aria first joined Batley lab in 2012 and then completed his PhD in “Crop Genomics” in 2015. After earning his PhD, Aria briefly worked at the Department of Primary Industries and Regional Development and then moved to Canada, to work as a Postdoctoral Research Fellow in the Department of Plant Science, the University of Manitoba. He then returned to the University of Western Australia and started a position as a Research Officer at Batley Lab. Aria’s strategic basic research falls within genetics, genomics, and plant pathology. He conducts research on plant-pathogen interaction, with a particular focus on *Brassica napus*-*Leptosphaeria maculans* and *B. napus-Verticillium longisporum* pathosystems. His work involves using plant pathology knowledge and methodology to recognise and diagnose fungal pathogens on plant material in the field and laboratory and applying bioinformatics and computational biology to develop and analyse genomic data.

Research Interests

Crop Genomics, Plant pathology, Resistance Genes

Publications

**Journal publication**

1. **Dolatabadian** **A**, Yuan Y, Bayer P, Petereit J, Severn-Ellis A, Tirnaz S, Patel D, Edwards D, Batley J (2022) Copy number variation among resistance genes analogues in *Brassica napus*. Genes 13(11), 2037
2. Sayari M, **Dolatabadian A**, El-Shetihy M, Rehal PK, Daayf F (2022) Genome-Based Analysis of *Verticillium* Polyketide Synthase Gene Clusters. Biology 11(9), 1252.
3. Zamanmirabadi A, Hemmati R, **Dolatabadian A**, Batley J (2022) Genetic structure and phylogenetic relationships of *Leptosphaeria* *maculans* and *L. biglobosa* in northern regions of Iran. Archives of Phytopathology and Plant Protection. 55(9): 1062-1081.
4. Fernando WGD and **Dolatabadian A** (2022). Microbiome: Diversity, Distribution, and Potential Role in Sustainable Crop Production.Journal of National Science Foundation 50 (Special): 133-152.
5. **Dolatabadian A**, Fernando WGD (2022) Genomic variations and mutational events associated with plant-pathogen interactions. Biology. 1(3), 421.
6. Chen S, Hayward A, Dey SS, Choudhary M, Hmon KPW, Inturrisi FC, **Dolatabadian A**, Neik TX, Yang H, Siddique KHM, Batley J, Cowling WA (2022) Quantitative trait loci for heat stress tolerance in *Brassica rapa* L. Are distributed across the genome and occur in diverse genetic groups, flowering phenologies and morphotypes. Genes. 13, 296.
7. **Dolatabadian A**, Cornelsen J, Huang S, Zou Z, Fernando WGD (2022) Sustainability on the Farm: Breeding for Resistance and Management of Major Canola Diseases in Canada Contributing towards an IPM Approach. Canadian Journal of Plant Pathology. 44: 157-190.
8. Zamanmirabadi A, Hemmati R, **Dolatabadian A**, Batley J (2021) Current progress in studying blackleg disease (*Leptosphaeria maculans* and L. *biglobosa*) of canola in Iran: Where do we stand now? Plant Pathology. 71: 239-250.
9. Zamanmirabadi A, Hemmati R, **Dolatabadian** A, Batley J (2021) Status of SSR, cSSR, iSSR and VNTR motifs from *Leptosphaeria maculans* based on high throughput sequencing data. Mycologia Iranica 8(2).
10. Yang C, **Dolatabadian A**, Fernando WGD (2022) The wonderful world of intrinsic and intricate immunity responses in plants against pathogens. Canadian Journal of Plant Pathology. 44: 1-20.
11. **Dolatabadian A** (2021) Plant-Microbe Interaction. Editorial, Special Issue: Plant-Microbe Interaction. Biology. 10(1),15.
12. Tirnaz S, Bayer P, Inturrisi F, Zhang F, Yang H, **Dolatabadian A**, Neik TX, Severn-Ellis A, Patel D, Ibrahim MI, Pradhan A, Edwards D, Batley J (2020) Resistance gene analogs in the Brassicaceae: Identification, characterisation, distribution, and evolution. Plant Physiology. 184: 909-922.
13. **Dolatabadian A,** Batley J, Edwards D, Barbetti MJ (2020) Virulence/avirulence patterns among *Leptosphaeria maculans* isolates determines expression of qualitative resistance and senescence involving programmed cell death in cotyledons of *Brassica napus*. European Journal of Plant Pathology 156: 1077-1089.
14. **Dolatabadian A,** Bayer P Tirnaz S Hurgobin B Edwards D Batley J (2019) Characterisation of disease resistance genes in the *Brassica napus* pangenome reveals significant structural variation. Plant Biotechnology Journal. 18: 969-982.
15. Gholamhoseini M, **Dolatabadian A**, Habibzadeh F (2019) Ridge-furrow planting system and wheat straw mulching effects on dryland sunflower yield, soil temperature and moisture. Agronomy Journal. 111: 3383-3392.
16. Hurgobin B, Golicz AA, Bayer PE, Chon‐Kit KC, Tirnaz S, **Dolatabadian** A, Schiessl SV, Samans B, Montenegro JD, Parkin IAP, Pires JC, Chalhoub B, King GJ, Snowdon R, Batley J, Edwards D (2018) Homoeologous exchange is a major cause of gene presence/absence variation in the amphidiploid *Brassica* *napus*. Plant Biotechnology Journal. 16: 1265-1274.
17. Etemadi F, Hashemi M, Zandvakili O, **Dolatabadian A,** Sadeghpour A (2018) Nitrogen Contribution from Winterkilled Faba Bean Cover Crop to Spring-Sown Sweet Corn in Conventional and No-Till Systems. Agronomy Journal. 10: 1-8.
18. Hemmati P, Zafari D, Mahmoodi SB, Hashemi M, Gholamhoseini M, **Dolatabadian A,** Ataei R (2018) Histopathology of charcoal rot disease (*Macrophomina phaseolina*) in resistant and susceptible cultivars of soybean. Rhizosphere. 7: 27-34.
19. **Dolatabadian A,** Patel DA, Edwards D, Batley J (2017) Copy number variation and disease resistance in plants. Theoretical and Applied Genetics. 130: 2479-2490.
20. Ahmadi-Rad S, Gholamhoseini M, Ghalavand A, Asgharzadeh A, **Dolatabadian A** (2016) Foliar application of nitrogen-fixing bacteria increases growth and yield of canola grown under different nitrogen regimes. Rhizosphere. 2: 34-37.
21. Manafi E, Modarres Sanavy SAM, Aghaalikhani M, **Dolatabadian A** (2015) Exogenous 5-Aminolevulenic Acid Promotes Antioxidative Defence System, Photosynthesis and Growth in Soybean against Cold Stress. Notulae Scientia Biologicae. 7: 486-494.
22. **Dolatabadian A,** Modarres Sanavy SAM, Ghanati F, Gresshoff PM (2013) *Agrobacterium rhizogenes* transformed soybean roots differ in their nodulation and nitrogen fixation response to genistein and salt stress. World Journal of Microbiology and Biotechnology (Formerly MIRCEN Journal of Applied Microbiology and Biotechnology). 29: 1327-1339.
23. **Dolatabadian A,** Modarres Sanavy SAM, Gholamhoseini M, Khodaei-Joghan A, Majd M, Beyraghdar-Kashkoli A (2013) The role of calcium in improving photosynthesis and related physiological and biochemical attributes of spring wheat subjected to simulated acid rain. Physiology and Molecular Biology of Plants. 19: 189-198.
24. Gholamhoseini M, Ghalavand A, **Dolatabadian A,** Jamshidi E, Khodaei-Joghan A (2013) Effects of arbuscular mycorrhizal inoculation on growth, yield, nutrient uptake and irrigation water productivity of sunflowers grown under drought stress. Agricultural Water Management. 117: 106-114.
25. Gholamhoseini M, Ghalavand A, Khodaei-Joghan A, **Dolatabadian A,** Zakikhani H, Farmanbar E (2013) Zeolite-amended cattle manure effects on sunflower yield, seed quality, water use efficiency and nutrient leaching. Soil and Tillage Research. 126: 193-202.
26. Zakikhani H, Ardakani MR, Rejali F, Gholamhoseini M, Khodaei-Joghan A, **Dolatabadian A** (2012) Influence of Diazotrophic Bacteria on Antioxidant Enzymes and Some Biochemical Characteristics of Soybean Subjected to Water Stress. Journal of Integrative Agriculture. 11: 1828-1835.
27. Gholamhoseini M, AghaAlikhani M, **Dolatabadian A,** Khodaei-Joghan A, Zakikhani H (2012) Decreasing Nitrogen Leaching and Increasing Canola Forage Yield in a Sandy Soil by Application of Natural Zeolite. Agronomy journal. 104:1467-1475.
28. Rahimi-Dehgolan R, Tahmasebi-Sarvestani A, Rezazadeh SA, **Dolatabadian A** (2012) Morphological and Physiological Characters of *Aloe vera* Subjected to Saline Water Irrigation. Journal of Herbs Spices & Medicinal Plants. 18: 222-230.
29. **Dolatabadian A,** Modarres Sanavy SAM, Ghanati F, Gresshoff PM (2012) Morphological and physiological response of soybean treated with the microsymbiont *Bradyrhizobium japonicum* pre-incubated with genistein. South African Journal of Botany. 79: 9-18.
30. Khodaei-Joghan A, Ghalavand A, Aghaalikhani M, Gholamhoseini M, **Dolatabadian A** (2012) How Organic and Chemical Nitrogen Fertilizers, Zeolite, and Combinations Influence Wheat Yield and Grain Mineral Content. Journal of Crop Improvement. 26: 116-129.
31. Mahdavi B, Modarres Sanavy SAM, Aghaalikhani M, Sharifi M, **Dolatabadian A** (2011) Chitosan Improves Osmotic Potential Tolerance in Safflower (*Carthamus tinctorius* L.) Seedlings. Journal of Crop Improvement. 25: 728-741.
32. Aghaalikhani M, Gholamhoseini M, **Dolatabadian A,** Khodaei-Joghan A, Asilan KS (2011). Zeolite influences on nitrate leaching, nitrogen-use efficiency, yield and yield components of canola in sandy soil. Archives of Agronomy and Soil Science. 58: 1-21.
33. **Dolatabadian A,** Modarres Sanavy SAM, Ghanati F (2011) Effect of Salinity on Growth, Xylem Structure and Anatomical Characteristics of Soybean. Notulae Scientia Biologicae. 3: 41-45.
34. Gholamhoseini M, Ghalavand A, **Dolatabadian A,** Jamshidi E, Khodaei-Joghan A (2010) Integrated fertiliser management to attain sunflower sustainable production under different irrigation regimes. Archives of Agronomy and Soil Science. 56: 295-309.
35. Mahdavi B, Modarres Sanavy SAM, Saberali SF, **Dolatabadian A** (2010) Influence of root-zone temperature on growth and nitrogen fixation in three Iranian grasspea landraces. Acta Agriculturae Scandinavica, Section B - Soil & Plant Science. 60: 40-47.
36. Bagheri M, Modarres Sanavy SAM, **Dolatabadian A** (2010) Impact of Inter-Row Spacing on Yield and Yield Components of several Annual Medics Species. Notulae Scientia Biologicae. 2: 116-124.
37. **Dolatabadian A,** Modarres Sanavy SAM, Asilan KS (2010) Effect of Ascorbic Acid Foliar Application on Yield, Yield Component and several Morphological Traits of Grain Corn under Water Deficit Stress Conditions. Notulae Scientia Biologicae. 2: 45-50.
38. Khodaei-Joghan A, Ghalavand A, Aghaalikhani M, Gholamhoseini M, **Dolatabadian A** (2010) Comparison among Different Integrated Nutrition Management for Soil Micro and Macro Elements after Winter Wheat Harvesting and Yield. Notulae Scientia Biologicae. 2: 107-111.
39. Balouchi HR, Modarres Sanavy SAM, Emam Y, **Dolatabadian A** (2009) UV radiation, elevated CO2 and water stress effect on growth and photosynthetic characteristics in durum wheat. Plant Soil and Environment. 55: 443-453.
40. **Dolatabadian A,** Modarres Sanavy SAM, Sharifi M (2009) Effect of salicylic acid and salt on wheat seed germination. Acta Agriculturae Scandinavica, Section B - Soil & Plant Science. 59: 456-464.
41. **Dolatabadian A,** Saleh-Jouneghani R (2009) Impact of Exogenous Ascorbic Acid on Antioxidant Activity and Some Physiological Traits of Common Bean Subjected to Salinity Stress. Notulae Botanicae Horti Agrobotanici Cluj-Napoca. 37: 165-172.
42. **Dolatabadian A,** Modarres Sanavy SAM, Sharifi A (2009) Alleviation of Water Deficit Stress Effects by Foliar Application of Ascorbic Acid on *Zea mays* L. Journal of Agronomy and Crop Science. 195:347-355.
43. Tohidi-Moghadam HR, Shirani-Rad AH, Nour-Mohammadi G, Habibi D, Modarres-Sanavy SAM, Mashhadi-Akbar-Boojar M, **Dolatabadian A** (2009) Response of six oilseed rape genotypes to water stress and hydrogel application. Pesquisa Agropecuária Tropical. 39: 43-250.
44. Fattahi-Neisiani F, Modarres Sanavy SAM, Ghanati F, **Dolatabadian A** (2009) Effect of Foliar Application of Pyridoxine on Antioxidant Enzyme Activity, Proline Accumulation and Lipid Peroxidation of Maize (*Zea mays* L.) under Water Deficit. Notulae Botanicae Horti Agrobotanici Cluj-Napoca. 37: 116-121.
45. **Dolatabadian A,** Modarres Sanavy SAM (2008) Effect of the Ascorbic Acid, Pyridoxine and Hydrogen Peroxide Treatments on Germination, Catalase Activity, Protein and Malondialdehyde Content of Three Oil Seeds. Notulae Botanicae Horti Agrobotanici Cluj-Napoca 36: 61-66.
46. **Dolatabadian A,** Modarres Sanavy SAM, Chashmi NA (2008) The Effects of Foliar Application of Ascorbic Acid (Vitamin C) on Antioxidant Enzymes Activities, Lipid Peroxidation and Proline Accumulation of Canola (*Brassica napus* L.) under Conditions of Salt Stress. Journal of Agronomy and Crop Science. 194: 206-213.

**Conference Proceedings**

1. Tirnaz S, Bayer PE, Inturrisi F, Neik TX, Yang H, **Dolatabadian A**, Zhang F, Severn-Ellis A, Patel DA, Pradhan A, Edwards D, Batley J (2020) Genome-wide identification of resistance gene analogs in the Brassicaceae. PAG XXVIII
2. **Dolatabadian A**, Bayer P, Tirnaz S, Hurgobin B, Edwards D, Batley J (2019) Characterisation of Resistance Genes in the *Brassica napus* Pangenome. PAG XXVII.
3. Scheben A, Bayer P, **Dolatabadian A**, Golicz A, Hurgobin B, Tirnaz S, Chan KC, Edwards D, Batley J (2019) *Brassica* Pangenomes as a Novel Source of Disease Resistance Genes. PAG XXVII.
4. Inturrisi FC, Tirnaz S, Bayer P, Neik TX, Yang H, **Dolatabadian A**, Zhang F, Severn-Ellis A, Patel DA, Pradhan A, Lee HT, Edwards D, Batley J (2018) Genome-Wide Analysis of NBS-LRR Genes in the Brassicaceae and Applications for Breeding. PAG XXVI.
5. **Dolatabadian A**, Hurgobin B, Bayer P, Edwards D, Batley J (2018) Characterisation of disease resistance genes in the *Brassica napus* pangenome. Brassica 2018, St-Malo, France.
6. **Dolatabadian A**, Bayer P, Edwards D, Batley J (2018) Characterisation and genetic mapping of resistance genes in the *Brassica napus* pangenome. The Integrative Plant Biology Conference IPG PAS, Poznan, Poland.
7. **Dolatabadian A**, Batley J, Edwards D, Barbetti M, Hurgobin B, Bayer P (2016) Association of Copy Number Variation with Qualitative and Quantitative Resistance against *Leptosphaeria maculans* in *Brassica napus*. Brassica 2016, Melbourne, Australia.
8. Chen S, Hayward A, Witt Hmon KP, Dey SS, Inturrisi FC, **Dolatabadian A**, Neik TX, Yang H, Nelson MN, Turner NC, Siddique KHM, Cowling WA, Batley J (2016) Genome-wide association analyses provide genomic insights into natural variation in heat tolerance of *Brassica rapa*. Brassica 2016, Melbourne, Australia.
9. Batley J, **Dolatabadian A**, Yang H, Severn-Ellis A, Alamery S, Tollenaere R, Bayer P, Hurgobin B, Golicz A, Edwards D (2016) The More the Merrier? Investigating Copy Number Variation in *Brassica* Disease Resistance. PAG ASIA.
10. **Dolatabadian A**, Modarres Sanavy SAM, Ghanati F, Gresshoff PM (2012) Nodulation and Nitrogen Fixation of Transformed Soybean Hairy Roots by *Agrobacterium rhizogenes* Affected by Genistein and Salt Stress. VIPCA; Austria.
11. **Dolatabadian A**, Modarres Sanavy SAM, Ghanati F, Gresshoff PM (2011) Effects of Genistein on Nodulation, Nitrogen Fixation and Physiological Attributes of Soybean under Salt Stress. TROPENTAG; Germany, 2011.

**Book chapter**

1. **Dolatabadian A**, Yang H, Batley J. (2018) Case Study for Trait-Related Gene Evolution: Disease Resistance Genes in *Brassica napus*. In: The *Brassica napus* genome (Ed Shengyi Liu, Rod Snowdon and Boulos Chalhoub) Springer (India) pp 223-232.

List of Awards

* 2022 Obtained approval to secure a research grant of up to CAD615,250 (~AUD670,400) from the Canola AgriScience Cluster funding program under the Canadian Agricultural Partnership.
* 2018 Awarded a UWA Convocation Postgraduate Research Travel Award to travel to Poland to visit the Institute of Plant Genetics, Polish Academy of Science.
* 2018 Awarded a UWA Graduate Research School Travel Award to travel to France to attend and present at the Brassica 2018 Conference.
* 2014 Awarded a Scholarship for International Research Fees and an International Living Allowance Scholarship (Ad Hoc Postgraduate Research Scholarship) by The University of Western Australia.
* 2012 Awarded a research grant from Iran National Science Foundation
* 2012 Awarded a travel grant to visit the University of Queensland, Brisbane, Australia.

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