

Asad Prodhan

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Laboratory Scientist

DPIRD Diagnostic Laboratory Services

Department of Primary Industries and Regional Development

3 Baron-Hay Court, South Perth WA 6151

Adjunct Research Fellow

School of Biological Sciences,

The University of Western Australia

35 Stirling Hwy, Perth, WA 6009

Highlights

Expertise	<ul style="list-style-type: none">• Automating bioinformatics workflows using Nextflow and Singularity• Genome assembly using Illumina short reads and Nanopore long reads• Transcriptome analysis• SNP marker identification through `genotyping-by-sequencing`• Quantitative Trait Locus (QTL) mapping• Molecular tools- DNA and RNA extraction, cDNA synthesis, qPCR, library preparation for next generation sequencing• Genetic transformation and tissue culture• Plant nutrition physiology, metabolomics and nutrient transporter genes• Programming languages- Bash, Python and R
Publications	<ul style="list-style-type: none">• Plant, Cell and Environment (2017 impact factor: 6.2)• New Phytologist (2016 impact factor: 7.3)• Trends in Plant Science (2017 impact factor: 12.1)

Employment

2019- present	JSPS Postdoctoral Research Fellow Japan International Center for Agricultural Sciences Responsibilities: <ul style="list-style-type: none">• RNA-seq analysis to determine how rice senses phosphorus stress• SNP identification in a rice breeding population• QTL mapping in rice for agronomically-important root traits
2017 - 2019	Molecular Biologist Department of Primary Industries and Regional Development, Western Australia Responsibilities: <ul style="list-style-type: none">• qPCR, PCR, gel electrophoresis for gene expression profiling• Library preparation for Illumina and Nanopore sequencing for genomic analysis• LAMP (Loop Mediated Isothermal Amplification) assay to detect a targeted gene
2018 - present	Adjunct Research Fellow School of Biological Sciences, University of Western Australia

Responsibilities:

- Determining nitrate transporter genes in *Hakea prostrata*
- Publishing the findings of the *H. prostrata* genome and transcriptome sequence analysis

2016-2018

Research Officer

School of Biological Sciences, University of Western Australia

Responsibilities:

- *Hakea prostrata* genome and transcriptome sequence analysis to identify nitrate transporter genes
- Supervising honours students

2016 – 2017

Demonstrator, Frontiers in Biology,

School of Biological Sciences, University of Western Australia, Australia

- Teaching and supervising undergraduate students in a first year biology lab

2009

Demonstrator, Molecular Biology,

School of Biological Sciences, University of Sydney, Sydney, Australia

- Teaching and supervising undergraduate students in a first year biology lab

Education

2017

PhD (Molecular Plant Physiology)

[School of Biological Sciences](#), University of Western Australia

Dissertation: Tight control of nitrogen and sulfur assimilation is an adaptive mechanism for *Hakea prostrata*, a plant from a severely phosphorus-impooverished habitat.

Supervisors: [E/Prof Hans Lambers](#) and [Associate Professor Patrick Finnegan](#)

2012

MSc (Molecular Biology)

[University of Sydney](#), Australia

Dissertation: Genotypic variation in cotton root system architecture

2006

MS (Genetics & Plant Breeding)

Bangladesh Agricultural University, Bangladesh

Dissertation: Optimization of transformation protocol in *Brassica* spp. using *Agrobacterium*.

Result: Distinction (**A⁺; GPA 4.0 out of 4.0**)

2005

BSc Agriculture (Honours), Bangladesh Agricultural University, Bangladesh

Result: First class

Peer-reviewed Publications

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- [13] Heredia MC, Kant J, **Prodhan MA**, Dixit S, Wissuwa M. 2021. Breeding rice for a changing climate by improving adaptations to water saving technologies. Submitted to Theoretical and Applied Genetics.
- [12] Huda M, Nuruzzaman M, Ferdousi A, **Prodhan M**, Hossain A. 2019. Characterization of salt tolerance in rice landraces (*Oryza sativa* L.) at seedling stage. *Indian Journal of Natural Sciences* 10(56): 17613-17629.
- [11] Alam MA, Syazwanie NF, Mahmud NH, Badaluddin NA, Mustafa KA, Alias N, Aslani F, **Prodhan MA**. 2018. Evaluation of antioxidant compounds, antioxidant activities and capsaicinoid compounds of Chili (*Capsicum* sp.) germplasms available in Malaysia. *Journal of Applied Research on Medicinal and Aromatic Plants* 9: 46-54.
- [10] **Prodhan M.A.**, Finnegan P.M. & Lambers H. (2018) How does evolution in a severely phosphorus-impooverished landscape impact the control of plant nitrogen and sulfur assimilation? [Trends in Plant Science](#) 24(1):69-82.
- [9] **Prodhan M.A.**, Jost R., Watanabe M., Hoefgen R., Lambers H. & Finnegan P.M. 2017. Tight control of sulfur assimilation: an adaptive mechanism for a plant from a severely phosphorus-impooverished habitat. [New Phytologist](#) 215, 1068-1079.
- [8] **Prodhan M.A.**, Jost R., Watanabe M., Hoefgen R., Lambers H. & Finnegan P.M. 2016. Tight control of nitrate acquisition in a plant species that evolved in an extremely phosphorus-impooverished environment. [Plant, Cell and Environment](#) 39: 2754-2761.
- [7] **Prodhan M.A.**, Hassan L. & Talukder S.K. 2008. Study of *in vitro* regeneration potentiality of ten Brassica genotypes (from *Brassica campestris*, *Brassica napus* and *Brassica juncea*). **Bangladesh Journal of Progressive Science & Technology** 6(1): 9-12.
- [6] Ghosal, S.; Hassan L., Biswas P. L. & **Prodhan M.A.** 2008. *In vitro* regeneration of *Brassica* species (Rapeseed, Mustard and Cole Crops). **Bangladesh Journal of Agricultural Science** 35(1).
- [5] Kamal A.H.M., Alam M.A., Pervin N., **Prodhan M.A.**, & Patwary A.K. 2008. Varietal responses in different concentration of plant growth regulators for callus induction and regeneration of wheat. **International Journal of BioResearch** 4(3):26-32.
- [4] Alam M.A., Kamal A.H.M., Pervin N., Khatun S. & **Prodhan M.A.** 2008. *In vitro* plantlet regeneration through anther and filament culture in oilseed *Brassica*. **International Journal of BioResearch** 4(4):12-18.
- [3] Basak S., Alam M.A., Sultana S., **Prodhan M.A.**, Dey R.C. & Hassan L.. 2008. Studies on callus induction and plant regeneration potentialities of indica rice varieties. **International Journal of BioResearch** 4(4):128-134.
- [2] **Prodhan M.A.**, Hassan L. & Talukder S. K. 2007. Optimization of *Agrobacterium* mediated genetic transformation protocol in two important *Brassica* varieties (Safal and Tori-7) of Bangladesh. **Bangladesh Journal of Crop Science** 18 (2): 265-272.
- [1] Mondal S.R., Hassan L., Sarker P.K. & **Prodhan M.A.** 2007. *In vitro* regeneration of
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chickpea (*Cicer arietinum* L.) genotypes using seed and seedling explants.

Bangladesh Journal of Agricultural Science 34(2): 169-176.

Conference Presentations

2015 USA	Prodhan M.A. , Jost, R., Lambers, H. & Finnegan, P.M. 2015. Cross-talk between phosphate and nitrate metabolism in <i>Hakea prostrata</i> . 20 th Penn State Plant Biology Symposium. 13-16 May 2015, Penn State University, PA, USA .
2014 France	Prodhan, M.A. , Finnegan, P.M., Lambers, H. & Jost, R. 2014. Phosphorus Use Efficiency in <i>Hakea prostrata</i> : Role of other Nutrients. Phosphorus in Soils and Plants 5. 26-29 August 2014, Montpellier, France .
2013 Australia	Prodhan, M.A. , Finnegan, P.M., Lambers, H. & Jost, R. 2013. Molecular Responses of <i>Hakea prostrata</i> to Changes in Mineral Nutrition. International Conference, ComBio 2013. 29 September – 3 October 2013, Perth, Australia .
2010 Australia	Prodhan, M.A. , McGee, P.A. & Saleeba, J.A. 2010. Genetics of Primary Root Branching in Cotton. International Conference on “Molecules of life: from discovery to biotechnology”. 26 September - 1 October 2010 in Melbourne, Australia .
2010 Australia	Prodhan, M.A. , McGee, P.A. & Saleeba, J.A. 2010. Candidate Genes for Root System Architecture in Cotton. Annual Conference of Genetics Society of AustralAsia. 4 - 8 July 2010 in CSIRO, Canberra, Australia .
2009 Australia	Prodhan, M.A. , Alomari, O.K., Ly, P.K.C., McGee, P.A. & Saleeba, J.A. 2009. Root System Architecture in Cotton. International Plant Phenomics Symposium : from Gene to Form and Function. 21 - 24 April 2009 in CSIRO, Canberra, Australia .

Research Experiences

2019- 2021	JSPS Postdoctoral Research Fellow Japan International Center for Agricultural Sciences <ul style="list-style-type: none"> Determining transcriptional responses of rice (<i>Oryza sativa</i>) to phosphorus stress Identifying genetic basis for phosphorus-efficient root traits in rice
2016-2018	Research Officer School of Biological Sciences, University of Western Australia <ul style="list-style-type: none"> Mining RNAseq database for nitrate transporter genes Supervising honours students
Jan 2013 – Nov 2016	Graduate Researcher School of Biological Sciences, University of Western Australia, Perth, Australia <ul style="list-style-type: none"> Studying phosphorus, nitrogen and sulfur cross-talks in <i>Hakea prostrata</i> Identifying nitrate transporter genes in <i>Hakea prostrata</i> using a RNAseq database
Sept – Nov 2014	Guest Postgraduate Researcher Max Planck Institute of Molecular Plant Physiology , Potsdam, Germany <ul style="list-style-type: none"> Determining metabolic adaptation to phosphorus-impooverished

	environments
Feb 2008 – Aug 2011	Graduate Researcher School of Biological Sciences, University of Sydney, Sydney, Australia <ul style="list-style-type: none"> Determining root traits to study root system architecture (RSA) in cotton (<i>Gossypium hirsutum</i>) under drought, salinity and black root rot disease stresses Studying allelic variation of a candidate gene for cotton root system architecture
Jul 2007– Jan 2008	Research Associate Dept. of Genetics and Plant Breeding, Bangladesh Agricultural University, Mymensingh, Bangladesh <ul style="list-style-type: none"> Studying <i>Agrobacterium</i>-mediated genetics transformation in rapeseed crop to develop a salt tolerant variety
Jul 2005 – June 2007	Research Assistant Dept. of Genetics and Plant Breeding, Bangladesh Agricultural University, Mymensingh, Bangladesh <ul style="list-style-type: none"> Studying <i>in vitro</i> regeneration potentiality of different Brassica genotypes

Teaching Experiences

2017	Supervisor, Honors Students of Molecular Plant Physiology School of Biological Sciences, University of Western Australia, Australia
2016 – 2017	Demonstrator, Frontiers in Biology, School of Biological Sciences, University of Western Australia, Australia
2016	Supervisor, Field Laboratory, Plant Physiological Ecology School of Biological Sciences, University of Western Australia, Australia
2009	Demonstrator, Molecular Biology, School of Biological Sciences, University of Sydney, Sydney, Australia

Scholarships and Awards

2016	PhD Completion Scholarship, Awarded by the University of Western Australia
2015	Conference Travel Award, Awarded by the Penn State University, USA
2015	Postgraduate Travel Award, Awarded by the University of Western Australia
2014	Convocation Research Travel Award, Awarded by the University of Western Australia
2013- 2016	Safety Net Top-Up Scholarship, Awarded by the University of Western Australia
2013- 2016	Australian Postgraduate Award, Awarded by the Commonwealth of Australia
2013- 2016	International Postgraduate Research Scholarship, Awarded by the University of Western Australia
2010	Conference Travel Award, Awarded by the Australian Society of Plant Scientist (ASPS)
2010	Postgraduate Conference Travel Grant, Awarded by the School of Biological

Sciences, the University of Sydney

2008-2012 International Postgraduate Award, **Awarded by the University of Sydney**

2008-2012 Endeavour International Postgraduate Research Scholarship, **Awarded by the Commonwealth of Australia**

Professional Memberships

Australian Society of Plant Scientist (ASPS)

European Federation of Biotechnology (EFB)

Referee

Employer

Dr Brenda Coutts

A/Director

DPIRD Diagnostics and Laboratory Services

Sustainability and Biosecurity

Department of Primary Industries and Regional Development

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Job Manager

Dr Monica Kehoe

Technical Area Manager

DPIRD Diagnostics and Laboratory Services

Sustainability and Biosecurity

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