Raphael Ployet

31 years old, French

Pretoria, South Africa

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ResearchGate
FABI Profile

Skills

Bioinformatics
- Programming language (R, MATLAB, Python)
- Online cluster work (Linux)
- Network analysis (Cytoscape)
- High-throughput sequencing data processing
- Phylogenetic tools
- Statistical tools
- Data-mining

Plant genetic engineering
- Sequence cloning
- Bacterial transformation
- Plant transient and stable transformation
- *In vitro* tissue culture

Plant phenotyping
- Transcriptomics (RNAseq, RT-qPCR)
- Metabolomics (LC-MS, GC-MS)
- Biochemistry
- Microscopy (SEM/TEM, confocal, epifluorescence)
- High-throughput image analysis

Communication
- Teamwork in international setting
- Presentation of results in international conference and peer-reviewed journals
- Guidance of students and teaching
- Scientific literature monitoring

Languages
- French, native speaker
- English, full professional proficiency
- Spanish, elementary

Hobbies

Sport, woodworking, mechanical engineering, electronics, botany…

PhD in Plant Biotechnology and Molecular Biology

MAIN INTERESTS/COMPETENCIES

- Systems genetics
- Omics data integration
- Systems biology
- Network analysis
- Bioinformatics
- Genetic engineering
- Molecular biology
- Tree physiology
- Problem solving
- Technology watch
- Scientific communication
- Collaborative teamwork

EDUCATION

2013 - 2017 **PhD in Plant Biotechnology**
University of Toulouse, France

2011 - 2013 **Master of Science in Plant Genetics and Development**
University of Toulouse, France

2007 - 2011 **Bachelor of Science in Cell Biology and Microbiology**
University of Toulon, France

RESEARCH EXPERIENCE

Aug. 2018 - Present **Postdoctoral researcher**

Project : *Combining systems genetics and artificial intelligence to dissect the regulatory pathways of wood formation in Eucalyptus.*

Present address:
Forestry and Agricultural Biotechnology Institute (FABI)
Forest Molecular Genetics Programme (FMG)
Department of Biochemistry, Genetics and Microbiology
Faculty of Natural and Agricultural Sciences
University of Pretoria
Private Bag X20
Pretoria, 0028
South Africa

Supervision:
Z. Myburg (zander.myburg@fabi.up.ac.za)
S. Hussey (steven.hussey@fabi.up.ac.za)

Forest Molecular Genetics Programme
directed by Z. Myburg
FABI, Pretoria, South Africa

Oct. 2013 - June 2017 **Doctoral candidate**

Oct. 2013 - Sept. 2016 : Postgraduate researcher
Grant of the French Ministry of Education and Research
⇒ Oct. 2016 - June 2017 : Research engineer
University of Toulouse III

Project : *Regulation of wood formation during development and in response to environmental constraints in Eucalyptus.* Full Text

Plant Science Research Laboratory (LRSV)
Eucalyptus Functional Genomics Group (EFG)
24 Chemin de Borde Rouge
31326 Toulouse
France

Supervision:
F. Mounet (mounet@lrsv.ups-tlse.fr)
J. Grima-Pettenati (grima@lrsv.ups-tlse.fr)

Eucalyptus Functional Genomics group
directed by J. Grima-Pettenati
LRSV (UMR5546), Toulouse, France

Jan. 2013 - May 2013 **Graduate research assistant**

Project : *Regulation of wood formation by cold stress in Eucalyptus.*

Plant Science Research Laboratory (LRSV)
Eucalyptus Functional Genomics Group (EFG)
24 Chemin de Borde Rouge
31326 Toulouse
France

Supervision:
J. Grima-Pettenati (grima@lrsv.ups-tlse.fr)
C. Teulieres (teulieres@lrsv.ups-tlse.fr)

Eucalyptus Functional Genomics group
directed by J. Grima-Pettenati
LRSV (UMR5546), Toulouse, France

May 2012 - Jul. 2012 **Undergraduate research assistant**

Project : *Functional characterization of two Lipid Transfer Proteins (LTPs) of Arabidopsis.*

Plant Science Research Laboratory (LRSV)
Cell Wall Proteins and Development Group (CWPD)
24 Chemin de Borde Rouge
31326 Toulouse
France

Supervision:
E. Jamet (jamet@lrsv.ups-tlse.fr)

Cell Wall Proteins and Development group
directed by E. Jamet
LRSV (UMR5546), Toulouse, France

References

Dr. Jacqueline Grima-Pettenati
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AWARDS

Jean Lesbats Prize 2017 : Best thesis work in forest species functional genomics, XYLOFUTUR center of excellence. Press Release

Student Supervision

Aug. 2018 - present
- Supervision/co-supervision: 2 Hons, 2MSc, 1PhD

Oct. 2013 - Sept. 2016 **Teaching assistant University of Toulouse III**
- Seminar and practical courses: 64h per year
- Supervision/co-supervision: 2 MSc, 3 BSc

PUBLICATIONS

- Christie, N., Mannapperuma, C., **Ployet, R.,** van der Merwe, K., et al. The Eucalyptus Genome Integrative Explorer: an online resource for systems genetics in forest tree species. *Plant Journal. Submitted*.
- Cao, P. B., **Ployet, R.,** Nguyen, C., Mounet, F., Martinez, Y., et al. Xylem architecture phenotype in Eucalyptus CBF-Overexpressors provides new insights on the cross-talk between stress response and wood formation. *International Journal of Molecular Sciences. Submitted.*
- Favreau, B., Denis, M., **Ployet, R.**, Mounet, F., Peireira da Silva, H., et al. (2019) Distinct leaf transcriptomic response of water deficient *Eucalyptus grandis* submitted to potassium and sodium fertilization. *PLOS ONE*. Full Text
- **Ployet, R.**, Veneziano Labate, M. T., Regiani Cataldi, T., Christina, M., et al. (2019). A systems biology view of wood formation in *Eucalyptus grandis* trees submitted to different potassium and water regimes. *New Phytologist*. Full Text
- Camargo, E. L. O., **Ployet, R.**, Cassan-Wang, H., Mounet, F., Grima-Pettenati, J. (2018). Digging in wood: New insights in the regulation of wood formation in tree species. *Advances in Botanical Research.* Full Text
- **Ployet, R.**, Soler, M., Carocha, V., Ladouce, N., Alves, A., *et al*. (2017). Long cold exposure induces transcriptional and biochemical remodeling of xylem secondary cell wall in *Eucalyptus*. *Tree Physiology*. Full Text
- Nguyen, H. C., Cao, P. B., San Clemente, H., **Ployet, R.**, *et al*. (2017). Special trends in CBF and DREB2 groups in *Eucalyptus gunnii* vs *Eucalyptus grandis* suggest that CBF are master players in the trade-off between growth and stress resistance. *Physiologia Plantarum*. Full Text

COMMUNICATIONS (most recent)

- Christie, N., Mannapperuma, C., Van der Merwe, K., **Ployet, R.**, *et al.* Genomics and systems genetics integrated explorer for forest tree species. *IUFRO Tree Biotechnology Meeting, 2019, Raleigh, USA*
- Loubser, L., **Ployet, R.**, Mizrachi, E., Christie, N., Myburg, A. A. Rapid genetic dissection of xylem gene expression variation in a Eucalyptus interspecific backcross population. *IUFRO Tree Biotechnology Meeting, 2019, Raleigh, USA*
- **Ployet, R.**, Soler, M., Carocha, V., Ladouce, N., Alves, A., *et al*. Low temperatures induce secondary cell wall remodeling in *Eucalyptus* through a complex network of transcription factors. *IUFRO Genomics and Forest Tree Genetics 2016, Arcachon, France.*
- **Ployet, R.**, Favreau, B., Denis, M., San Clemente, H., *et al*. Impact of potassium and sodium fertilization on secondary cell wall formation in *Eucalyptus grandis*: integration of transcriptomic and metabolomic data. *IUFRO Genomics and Forest Tree Genetics 2016, Arcachon, France.*
- **Ployet, R.**, Cao, P.B., Ladouce, N., Nguyen, C., Rodrigues, *et al*. Cold regulation of genes related to secondary cell wall biosynthesis affects wood structure and composition. *IUFRO Tree Biotechnology Conference 2015, Firenze, Italy.*
- Nguyen, C., Bang, P.B., Marque, C., **Ployet, R.**, Mounet, *et al*. Towards elucidating the role of DREB1 and DREB2 transcription factors in *Eucalyptus* whole plants under abiotic stresses: gene regulation in leaves, stems or roots. *IUFRO Tree Biotechnology Conference 2015, Firenze, Italy.*