

# Christian HERMANS

FNRS Research Associate

Lab of Plant Physiology and Molecular Genetics

Université Libre de Bruxelles

Campus Plaine CP 242, Bd du Triomphe

1050 Brussels

Belgium

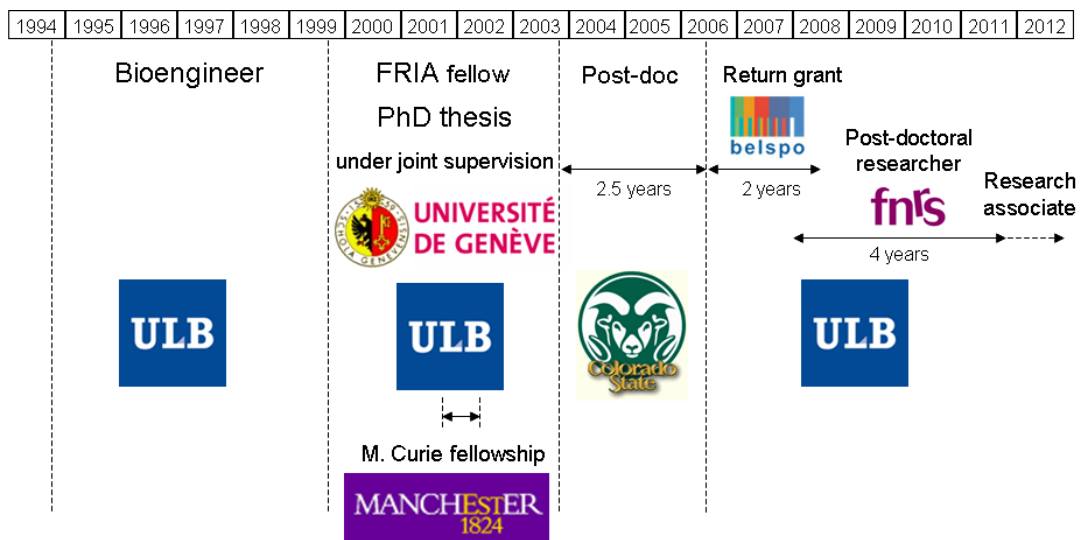


chermans@ulb.ac.be

+32 (0)2 650 54 17

## 1. Scientific formation

*Time line of employment in international institutions*



- University certificates

1994>1999      Université Libre de Bruxelles (ULB), BE      Agronomy Engineer

17-11-2003      { Université Libre de Bruxelles (ULB), BE      Doctorate in Agricultural Sciences and Biological Engineering  
 Joint supervision      { Geneva University (UniGE), CH      Doctorate in Sciences - interdisciplinary mention

Doctoral thesis: “Physiological Characterisation of Magnesium Deficiency in Plants: Effects on Photosystems and Sugars Partitioning”. Directors: Prof. N. Verbruggen (ULB) & Prof. R.J. Strasser (UniGE).

- Training or studies in a foreign country

1997 (1 month)	P.I.C Erasmus “Marine biodiversity”, ParisVI, Roscoff, FR
1998>2003 (regularly)	Bioenergetics Laboratory, Geneva University, CH
2001>2002 (6.5 months)	Marie Curie Training Site Studentship, School of Biological Sciences, The University of Manchester, UK
2003 (1 month)	Plant Physiology and Biochemistry - UMR CNRS 6161, Université de Poitiers, FR
2008>2011 (9 weeks)	Life Science Trace Gas Facility, Laser Physics (FP6-026183), Radboud University, Nijmegen, NL
2009 (2 weeks)	Centre for Plant Integrative Biology, Nottingham University, UK
2009 (1 week)	Faculty of Biomedical & Life Sciences, The University of Glasgow, Glasgow, UK

## 2. Research activities

- Previous and present functions (pre- and post-doc)

10-1999>09-2003	PhD student. Fonds pour la Recherche dans l’Industrie et l’Agriculture (FRIA), BE
12-2003>05-2006	Postdoctoral researcher. Biology Dpt, Colorado State University, Fort Collins, USA
06-2006>05-2008	Postdoctoral researcher. Return Grant of the Belgian Science Policy (BELSPO), BE
06-2008>09-2011	Postdoctoral researcher. Fonds National de la Recherche Scientifique (FNRS), BE
10-2011→	Research Associate. Fonds National de la Recherche Scientifique (FNRS), BE

- Scientific conferences and congresses attended (\*) oral presentation

<b>2000</b>	Hansatech Instruments Ltd. Workshop. Warsaw Agricultural University.	Warsaw Poland
<b>2001</b>	64 <sup>th</sup> Congress of the International Institute for Sugar Beet Research.	Bruges, Belgium

	International Conference on Chloroplasts: Development and Function. 12 <sup>th</sup> International Congress on Photosynthesis.	New Delhi, India Brisbane, Australia
<b>2002</b>	Gordon Research Conference on Photosynthesis. 13 <sup>th</sup> congress of the Federation of European Societies of Plant Biologists.	Bristol, RI, USA Hersonissos, Greece
<b>2003</b>	183 <sup>rd</sup> meeting of the Belgian Soc. of Biochemistry and Molecular Biology.	Brussels, Belgium
<b>2004</b>	Annual Cell & Molecular Biology Symposium. Annual meeting of the American Society of Plant Biologists.	Fort Collins, CO, USA Orlando, FL, USA
<b>2005</b>	16 <sup>th</sup> International Conference on Arabidopsis Research.	Madison, WI, USA
<b>2007</b>	EMBO conference From Basic Genomics to Systems Biology. FNRS Plant Biology group From Gene to Function. 18 <sup>th</sup> International Conference on Arabidopsis Research. 8 <sup>th</sup> Plant GEM	Ghent, Belgium Gembloux, Belgium* Beijing, China Tenerife, Spain
<b>2008</b>	Resource Capture Conference	Nottingham, UK*
<b>2009</b>	19 <sup>th</sup> International Conference on Arabidopsis Research. FNRS Plant Biology group From Gene to Function.	Edinburgh, UK Gembloux, Belgium*
<b>2010</b>	1 <sup>st</sup> International Symposium on the Nitrogen Nutrition of Plants. Genetics of Plant Mineral Nutrition. COST FA 0905 Mineral Improved Crop Production for Healthy Food & Feed.	Aichi, Japan Hannover, Germany Antalya, Turkey*
<b>2011</b>	International symposium on Growth and Development of Roots. Workshop Life Science Trace Facility and Trace Gas Research Group.	Louvain-la-Neuve, Belgium* Nijmegen, the Netherlands*
<b>2012</b>	20 <sup>th</sup> Plant & Animal Genomes Conference. Workshop iHUB: A Collaborative International Network for Ionomics. 1 <sup>st</sup> Symposium Magnesium in Crop Production, Food Quality & Human Health. 8 <sup>th</sup> Symposium of the International Society of Root Research. 6 <sup>th</sup> International Symposium on Brassicas.	San Diego, CA, USA* St Louis, MI, USA* Goettingen, Germany* Dundee, UK Catania, Italy
<b>2013</b>	Nitrogen, Environment & Vegetable Nitrogen 2013	Turin, Italy Puerto Varas, Chili
<b>2014</b>	Plant Biology Europe FESPB/EPSO congress. 2 <sup>nd</sup> Symposium Magnesium in Crop Production, Food Quality & Human Health.	Dublin, Ireland* Sao Paulo, Brasil*
<b>2015</b>	23 <sup>rd</sup> Plant & Animal Genomes Conference.	San Diego, CA, USA*
	<ul style="list-style-type: none"> <li>• <u>Seminars in scientific institutions</u></li> </ul>	
<b>2002</b>	Department of Plant Biology, Université de Liège, Belgium	
<b>2003</b>	Université de Poitiers, France	
<b>2004</b>	Plant Super Group, Colorado State University, Fort Collins, CO, USA	

- 2006** Inaugural session of the Thematic Doctoral School 'Plant Science', Louvain-la-Neuve, Belgium
- 2007** Belgian Royal Society of Botany, National botanical garden of Meise, Belgium  
The Scottish Crop Research Institute, Dundee, United Kingdom
- 2008** Institut Jean-Pierre Bourgin, INRA Versailles, France  
Earth and Life Institute, UCL, Louvain-La-Neuve, Belgium
- 2009** Hautes Etudes de Belgique, Brussels, Belgium  
Centre for Plant Integrative Biology, University of Nottingham, United Kingdom
- 2010** Leibniz Institute of Plant Genetics and Crop Plant Research, IPK Gatersleben, Germany  
University of Wageningen, the Netherlands
- 2012** The Institute of Vine and Wines Sciences - ISVV, INRA Bordeaux, France  
Plant System Biology-VIB, Ghent University, Belgium  
Biology Dpt, Colorado State University, Fort Collins, CO, USA  
Plant Super Group, Colorado State University, Fort Collins, CO, USA
- 2013** Biochemistry and Molecular Physiology of Plants Unit, INRA Montpellier, France  
Gregor Mendel Institute, Vienna, Austria
- 2014** Biochemistry and Molecular Physiology of Plants Unit, INRA Montpellier, France  
Plant System Biology-VIB, Ghent University, Belgium

- Peer reviewer activity

Occasional reviewer for *Biology Letters*, *Biological Trace Element Research*, *Frontiers in Plant Physiology*, *Journal of Plant Physiology*, *New Phytologist*, *Molecular Ecology*, *Physiologia Plantarum*, *Plant Physiology*, *Plant & Soil* and *Zeitschrift für Arznei- & Gewürzpflanzen* (Journal of Medicinal & Spice Plants).

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### 3. Prizes and awards

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- 1994** ING Bank prize, Belgium  
> *High school scientific prize*
- 1999** Paul Duvigneaud prize  
> *Best master thesis, the Interfaculty Bioengineers School- ULB*
- 2000** 1<sup>st</sup> laureate of AlrBr prize  
> *Greatest vulgarized communication on master thesis work, the Brussels Engineers Association*
- 2003** UAE grant, New-York section

> Grant offered to one researcher or teacher of ULB wishing to travel to the United States to enhance his knowledge

**2010** Joseph Schepkens prize

> Reserved for EU nationals, this prize from the Royal Academy of Sciences, Letters & Arts of Belgium is awarded every 3 years to the author of an original work on the study of diseases and pests of plants

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#### **4. Publications** 1,331 citations, h index= 14 (Scopus, Sept 2014)

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*Publications in international peer-reviewed journals*

(\*) corresponding author, IF: Impact factor of the year

**2003** Hermans C., Smeyers M., Rodriguez R.M., Eyletters M., Strasser R.J. and Delhaye J.P. Quality assessment of urban trees: A comparative study of physiological characterisation, airborne imaging and on site fluorescence monitoring by the OJIP-test. *Journal of Plant Physiology* 160: 81-90. IF=1.149

Chaerle L., Hulsen K., Hermans C., Strasser R.J., Valcke R., Höfte M. and Van Der Straeten D. Robotised time-lapse imaging to assess in planta uptake of phenylurea herbicides and their microbial degradation. *Physiologia Plantarum* 118: 613-619. IF= 1.767

Hien D.T., Jacobs M., Angenon G., Hermans C., Thu T.T., Son L.V., Roosens N.H. Proline accumulation and  $\Delta^1$ -pyrroline-5-carboxylate synthetase gene properties in three rice cultivars differing in salinity and drought tolerance. *Plant Science* 165: 1059-1068. IF=1.652

**2004** Hermans\* C., Johnson G.N., Strasser R.J. and Verbruggen N. Physiological characterisation of magnesium deficiency in sugar beet: acclimation to low magnesium differentially affects photosystems I and II. *Planta* 220: 344-355. IF=3.053

**2005** Hermans\* C., Bourgis F., Faucher M., Delrot S., Strasser R.J. and Verbruggen N. Magnesium deficiency in sugar beet alters sugar partitioning and phloem loading in young mature leaves. *Planta* 220: 441-449. IF=3.180

Hermans\* C. and Verbruggen N. Physiological characterization of magnesium deficiency in *Arabidopsis thaliana*. *Journal of Experimental Botany* 56: 2153-2161. IF=3.336

**2006** Hermans\* C., Hammond J.P., White P.J. and Verbruggen N. (2006) How do deficiencies of essential mineral elements alter biomass allocation? *Trends in Plant Sciences* 11: 610-617. IF=8.000

**2007** Hermans C., Hammond J.P., Verbruggen N. and White P.J. Response to Andrews et al.: Correlations do not imply causality. *Trends in Plant Sciences* 12: 532-533. (Opinion letter). IF=8.995

**2008** Verbruggen N. and Hermans C. (2008) Proline accumulation in plants: a review. *Amino Acids* 35: 753-759. IF=4.132

**2009** Verbruggen N., Hermans C. and Schat H. Mechanisms to cope with arsenic or cadmium excess in

plants. *Current Opinion in Plant Biology* 12: 364-372. IF=8.688

Verbruggen N., Hermans C. and Schat H. Molecular mechanisms of metal hyperaccumulation in plants. *New Phytologist* 181: 759-776. IF=5.178

Chipeng F.K., Hermans C., Colinet G., Faucon M.-P., Ngongo M., Meerts P. and Verbruggen N. Copper tolerance in the cuprophyte *Haumaniastrum katangense* (S. Moore) P.A. Duvign. & Plancke. *Plant and Soil* 328: 235-244. IF=1.998

**2010** Hermans C., Porco S., Verbruggen N. and Bush D. Chitinase-like protein CTL1 plays a role in the root system plasticity in response to multiple environmental signals. *Plant Physiology* 152: 904-917. IF= 6.451

Hermans\* C., Vuylsteke M., Coppens F., Craciun A., Inzé D. and Verbruggen N. The early transcriptomic changes induced by magnesium deficiency in *Arabidopsis thaliana* reveal the alteration of circadian clock genes expression in roots and the triggering of ABA-responsive genes. *New Phytologist* 187: 119-131. IF= 6.516

Hermans\* C., Vuylsteke M., Coppens F., Cristescu S., Harren F.J.M., Inzé D. and Verbruggen N. System analysis of the responses to long term magnesium deficiency and restoration in *Arabidopsis thaliana*. *New Phytologist* 187: 132-144. IF=6.516

Lequeux H., Hermans C., Luts S. and Verbruggen N. Morphological and physiological changes in *Arabidopsis thaliana* in response to copper excess. *Plant Physiology and Biochemistry* 48: 673-682. IF: 2.402

**2011** Hermans\* C., Chen J., Coppens F., Inzé D. and Verbruggen N. Low magnesium status in plants enhances tolerance to cadmium exposure. *New Phytologist* 192: 428-436. IF=6.516

Hermans\* C., Porco S., Vandenbussche F., Gille S., De Pessemier J., Van Der Straeten D., Verbruggen N. and Bush D.R. Dissecting the role of CTL1 in nitrate-dependent changes in root architecture. *Plant Physiology* 157: 1-15. IF=6.451

**2012** Baxter I., Hermans C., Lahner B., Yakubova E., Tikhonova M., Bing H., Verbruggen N., Chao D.-Y. and Salt D.E. Mineral accumulation of *Arabidopsis* natural populations. *PLoS ONE*. 7: e35121. IF=4.361

**2013** De Pessemier J., Chardon F., Juraniec M., Delaplace P. and Hermans\* C. Natural variation of the root morphological response to nitrate supply in *Arabidopsis*. *Mechanisms of Development*. 130: 45-53. doi:10.1016/j.mod.2012.05.010. IF=2.958

Cristescu S.M, Mandon J., Arslanov D., De Pessemier J., Hermans C. and Harren F.J.M. Current methods for detecting ethylene in plants. *Annals of Botany* 111: 347-360. doi:10.1093/aob/mcs259. IF= 4.030

Verbruggen N. and Hermans\* C. Physiological and molecular responses to magnesium nutritional imbalance in plants. *Plant and Soil* 368: 87-99. IF=2.733

Hermans\* C., Conn S., Chen J., Xiao Q. and Verbruggen N. Update on magnesium homeostasis mechanisms in plants. *Metallomics* 5: 1170-1183. doi: 10.1039/c3mt20223b. IF=3.592

**2014** Juraniec M., Lequeux H., Hermans C., Willems G., Nordborg M., Scheenberger K., Salis P., Vroman M., Lutts S. and Verbruggen N. Towards the discovery of novel genetic component involved in stress resistance in *Arabidopsis thaliana*. *New Phytologist* doi: 10.1111/nph.12554 IF=6.736

To be submitted/under revision

Xiao Q., Verbruggen N., Hermans C. Root morphological adaptation to magnesium sources in *Arabidopsis thaliana*. To be submitted *Plant Physiology*

J. De Pessemier, P. Nacry, Tillard P., Haseloff J., Swarup K., Inzé D., Wells D., Bennett M., Hermans C. Nitrate-related root architecture and uptake efficiency are not implicitly correlated in natural accessions of *Arabidopsis thaliana*. To be submitted to *Journal of Experimental Botany*

J. De Pessemier, Cristescu S., Harren FJM, Van Der Straeten D., Verbruggen N., Hermans C. Natural variation of ethylene emanation upon nitrogen supply changes in *Arabidopsis thaliana*. To be submitted to *Plos ONE*.

### *Book chapters*

**2008** Hermans C. and Verbruggen N. (2008) Enhancement of magnesium content in plants by exploiting ionomics and transcriptomics. *In: Dietary Magnesium: New Research*. Editor: A.W. Yardley, Nova Science Publishers Inc., pp 159-175. ISBN 978-1-60692-109-8,

**2013** Verbruggen N. and Hermans C. Root responses to trace metallic elements. *In: Plant Roots: the Hidden Half*. 4<sup>th</sup> edition. Editors: Eshel and Beeckman T., Taylor & Francis Group, CRC Press. ISBN 978-1-4398-4648-3

Hermans C., Chen J. and Verbruggen N. Magnesium in plants. *In: Encyclopedia of metalloproteins*. Editors: Kreitsinger R., Permyakov E. and Uversky V.N., Springer Eds, pp 1269-1276. ISBN 978-1-4614-1532-9

**2014** Cristescu S., Woltering E., Hermans C., Harren F.J.M., te Lintel Hekkert S. Research tools: Ethylene detection. *In: Ethylene in Plants*. Editor: C.-K. Wen. Chp 14 *In press*

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## **5. Supervision of students and postdocs**

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### **Master students**

2006-2007 V. Lefebvre  
2008-2009 M. Mendaluk, K. Hetmans  
2010-2011 J. De Pessemier  
2013-2014 L. Tsouli  
C. Dekuijper

**PhD candidates**

10/2011- J. De Pessemier, FRIA fellow, 'Study of genetic determinisms of root response to nitrate'  
12/2012- Q. Xiao, hired under ARC project, 'Interplay between magnesium and circadian rhythms'  
07/2014- H. De Gernier, hired under MIS project

**Post-doctoral fellows**

07/2014-12/2016 L. Kupcsik  
10/2014-12/2016 J. Xu