

Dr. Hatem Rouached

Assistant Professor
The Plant Resilience Institute
Department of Plant, Soil and Microbial
Sciences - Michigan State University
1066 Bogue St, Room A286
East Lansing, MI 48824

E-mail: rouached@msu.edu
Phone: +1 (517)-997-2074
Twitter: @hatemrouached
Lab website:
<https://rouachedlab.weebly.com/>

ACADEMIC PREPARATION

- 2011 H.D.R. Habilitation to Direct Research work, University de Bourgogne - France
- 2005 Ph.D. in plant molecular physiology, University of Montpellier - France (July 1st, 2005)
- 2002 Master's degree Research in Plant Molecular Biology, the French national institute of higher education in agricultural sciences - Montpellier – France
- 2001 License in Natural Sciences, University of Sfax (Tunisia)

PRESENT AND PAST POSITIONS

- 2020-present Assistant Professor, Michigan State University (MSU), Department of Plant, Soil, and Microbial Sciences (PSM) and Plant Resilience Institute (PRI), East Lansing, MI, USA
- 2016-2018 Visiting Faculty at Carnegie Institution for Science. Stanford, California, USA
- 2016-2017 Adjunct Professor at Chiang Mai University, Agriculture faculty, Thailand
- 2012-2020 Researcher at French National Institute for Agricultural Research (INRA) France
- 2010-2012 Senior Scientist at BASF Plant Science Company –CropDesign Gand, Belgique

FELLOWSHIPS/AWARDS

- 2016-2018 Marie Skłodowska-Curie and AgreeSkills Plus Fellowship.
- 2015-2018 Researcher for Future by “Région Languedoc-Roussillon”, Montpellier, France.
- 2005-2010 Postdoctoral fellowship from “Canton de Vaud”, Lausanne, Switzerland.
- 2002-2005 Tunisian Ministry of Education (MENRT competitive fellowship for Ph.D. thesis).
- 2001-2002 Tunisian Ministry of Education (Excellence fellowship, M.S.)

PROFESSIONAL

Editorial activities:

Editors board:

- 2022-present *The Plant Journal*: Editorial Board (3 -4 manuscripts/ month)
- 2020-present *Critical Review in Biotechnology*: Editorial Board (2 -3 manuscripts/month)
- 2020-present *International Journal of Molecular Science* (1 manuscript/ trimester)
- 2018-present *Frontiers in Plant Science*: Editorial Board (1 manuscript/trimester)

Guest Editor:

- 2023 Special issue. The Plant Journal “Plant response to combinatorial stresses”.
- 2023 Special issue. International Journal of Molecular Science "Regulation on Nutrient Sensing, Signaling and Transport in Plants".
- 2021 Special issue. Frontiers in Plant Science. Mechanisms of Abiotic Stress Responses and Tolerance in Plants: Physiological, Biochemical and Molecular Interventions, Volume II
- 2015 Special issue. International Journal of Molecular Science "Regulation on Nutrient Sensing, Signaling and Transport in Plants"
- 2015 Special issue. BioMed Research International. Plants Coping Abiotic and Biotic Stresses: A Tale of Diligent Management
- 2014 Special issue. Frontiers in Plant Science. Mechanisms of abiotic stress responses and tolerance in plants: physiological, biochemical and molecular interventions

Ad hoc Reviewer:

Nature Plants, Nature Communications, The EMBO Journal, The Plant Cell, New Phytologist, Plant Physiology, The Plant Journal, Journal of Experimental Botany, Plant and Cell Physiology, Plant and Cell Environment, Plant Cell Reports, Critical Reviews in Biotechnology, International Journal of Molecular Science, Frontiers in Plant Science, Trends in Plant Science.

Grant Reviewer:

- 2022 & 2023 Panel member in Graduate Research Fellowships Program (GRFP), The National Science Foundation (NSF, USA)
- 2020-2021 Ad-hoc reviewer- Research Foundation Flanders (FWO)- Belgium
- 2021 Ad-hoc reviewer- Supporting Talents in ReSearch (STARS) Grants- Italy
- 2018-2019 Ad-hoc reviewer- National Science Center Poland (NCN). Poland
- 2017 Ad-hoc reviewer: The National Research Foundation (NRF) (South Africa)
- 2016 Ad-hoc reviewer: The COST research proposal (Switzerland)
- 2014 Ad-hoc reviewer- Program: Physiological and Structural Systems Cluster. NSF.
- 2014 Ad-hoc reviewer- The ERA-NET Coordinating Action in Plant Sciences (ERA-CAPS)

Symposium and workshops organization:

- 2023 Committee member of the 7th International Conference on “Plant Abiotic Stress Tolerance” (VISCEA) September 8-9, 2023 in Vienna, Austria.
- 2023 Co-organizing a concurrent session on “Advances in Plant Nutrition Under Changing Environment”. The 33rd International Conference on Arabidopsis Research (ICAR2023). June 05-09, 2023 in Chiba, Japan.
- 2022 Co-organizing a concurrent session on “Inclusive nutrition for a sustainable agriculture”. The Society for Experimental Biology’s (SEB) Annual Conference. July 05-08, 2022 at Montpellier, France.
- 2022 Co-organizing a concurrent session on “Advanced Plant Mineral Nutrition and Phytoremediation”. The International Conference on Arabidopsis Research (ICAR) 2022. June 20-24, 2022 at the International Conference Centre in Belfast, Northern Ireland.

- 2022 International symposium on Plant Mineral Nutrition. Michigan state University, USA
- 2014 Local organizing committee of the International Symposium on Phosphorus in Soils and Plants. August 26-29 2014 in Corum-Montpellier, France.
- 2002 Local organizing committee of the 5th Workshop on Sulfur Transport and Assimilation in Plants. 11-April 11-14 2002 in SupAgro-Montpellier, France.

PhD Jury Member:

- 2023 « Thesis Director » Therbay-Vale R. INRAe Montpellier, France
- 2019 « Expert » Yi C. Department of Animal, Plant, and Soil Sciences, Australian Research Council Centre of Excellence in Plant Energy Biology, La Trobe University, Australia
- 2018 « Thesis Director » Kisko M. SupAgro-Montpellier, France
- 2017 « Thesis Director » Belgaroui N. SupAgro-Montpellier, France
- 2016 « Thesis Director » Bouain N. SupAgro-Montpellier, France
- 2015 « Expert » Ayadi A. CNRS- Aix Marseille University, France.
- 2012 « Expert » Arnaud C. CNRS- Aix Marseille University, France.

PhD committees:

- 2023-present Committee Member, Mr. Diego Granados-Villanueva (BMB program) MSU, USA
Major advisor: Dr. Lebeis S.
- 2022-present Committee Member, Mrs. Le Moss (MPS program). MSU, USA
Major advisor: Dr. Lebeis S.
- 2021 Committee Member, Mrs. Lipham, Mckena (Horticulture program), MSU, USA
Major advisor: Dr. VanBuren R.
- 2016-2019 Committee Member, Mr. Safi A. (Plant Physiology program). SupAgro-Montpellier, France. Major advisor: Dr. Krouk G.

TEACHING

Regular teaching

- 2023-present Advanced Plant Nutrition (CSS 485) –PSM, MSU (USA)
Spring 2023, 40 hours
- 2021- 2022 Physiology of Plant Nutrition (CSS 491) – PSM, MSU, (USA)
Spring 2023, 40 hours
- 2005-2009 Plant genetics, University of Lausanne, (Switzerland)
- 2003-2005 Plant Biology, 25h/year, SupAgro-Montpellier (France)

Guest lectures

- 2022 The regulation of plant nutrition, MSU, Department of Plant Biology
- 2016-2017 Nutrient transport in plants, Chiang Mai University, Agriculture faculty, Chiang Mai (Thailand)

SUPERVISION/TRAINING

2 undergraduate Students

2014 Perié. C. SupAgro Montpellier- France
2012-2013 Bouraine S. University of Montpellier- France

6 PhD Students

2019-2023 Therbay-Vale R. Montpellier - France
2015-2018 Kisko M. SupAgro Montpellier- France
2013-2016 Bouain N. SupAgro Montpellier- France
2013-2016 Belgaroui N. SupAgro Montpellier- France
2013- 2016 Chaiwong N. Uni. Chiang Mai

8 Postdocs

2021-present Dr. Cassin-Ross G. (research associate and Lab manager). Michigan State University.
2021-present Dr. Cho H. Michigan State University.
2022-2023 Dr. Shundu J. Michigan State University.
2020-2021. Dr. Lay K. Michigan State University.
2019-2020 Dr. Cho H. Montpellier- France
2014-2016 Dr. Pal S. Montpellier- France
2015-2016 Dr. Saenchai C. Montpellier- France
2016-2017 Dr. Mongon J. Montpellier- France
2015-2016 Dr. Secco D. Montpellier- France

PUBLICATIONS (*: correspondent author)

2023

Hu S, Du B, Mu G, Jiang Z, Li H, Song Y, Zhang B, Xia J, **Rouached H**, Zheng L. The transcription factor OsbZIP48 is essential for regulating rice responses to zinc deficiency. **Plant Physiology**. **In revision**. 2023.
Salse J, Romain Barnard R, Claire Veneault-Fourrey C, **Rouached H***. Strategies To Breed Crops For Future Environments. **Invited Review**. **SUBMITTED**. 2023.
Cho H, Michael Banf M, Shahzad Z, Van Leene J, Bossi F, Ruffel S, Bouain N, Krouk G, De Jaeger G, Lacombe B, Brandizzi F, Rhee S, **Rouached H***. ARSK1 activates TORC1 signaling to adjust growth to phosphate availability in Arabidopsis. **Current Biology**. **In press**
Hirt H, Al-Babili S, Almeida-Trapp M,, **Rouached H**, M. Saad M, Schlögelhofer P, Wrzaczek, Wulff B, Young IM. PlantACT! – how to tackle the climate crisis. **Trends in Plant Science** 2023. Feb 3;S1360-1385(23)00024-9.

2022

- Bouain N, Cho H, Sandhu J, Tuiwong P, Promuthai C, Zheng L, Shahzad Z, **Rouached H***. Plant growth stimulation by high CO₂ depends on phosphorus homeostasis in chloroplasts. **Current Biology**. 2022. Oct 24;32(20):4493-4500.e4. doi: 10.1016/j.cub.2022.08.032. Epub 2022 Sep 7.
- Sandhu J, **Rouached H***. Phosphate transport in plants: all roads lead to PHO1. **Nature Plants**. 2022. Sep;8(9):986-987. doi: 10.1038/s41477-022-01242-7.
- Shahzad Z, **Rouached H***. Protecting plant nutrition from the effects of climate change. **Current Biology**. 2022. Jul 11;32(13):R725-R727. doi: 10.1016/j.cub.2022.05.056.
- Wang W, Ye J, Xu H, Liu X, Fu Y, Zhang H, **Rouached H**, Whelan J, Shen Z, Zheng L. OsbHLH061 links TOPLESS/TOPLESS-RELATED Repressor Proteins with POSITIVE REGULATOR OF IRON HOMEOSTASIS 1 to Maintain Iron Homeostasis in Rice. **New Phytologist**. 2022. Jun;234(5):1753-1769. doi: 10.1111/nph.18096. Epub 2022 Apr 2.
- Lay-Pruitt KS, Wang W, Prom-U-Thai C, Pandey A, Luqing Z, **Rouached H***. A tale of two players: the role of phosphate in iron and zinc homeostatic interactions. **Planta**. 2022. Jun 29;256(2):23. doi: 10.1007/s00425-022-03922-2.
- Gojon A, Nussaume L, Luu DT, Murchie E, Baekelandt A, Saltenis V.L.R Cohan J.P, Inzé D , Ferguson JN, Guiderdoni E, Krapp A, Lankhorst RK, Maurel C, **Rouached H**, Parry M.A.J, Pribil M, Scharff LB, and Nacry P*. Approaches and determinants to sustainably improve crop production. **Food and Energy Security**. 2022. 26 January <https://doi.org/10.1002/fes3.369>
- Khampuang K, Dell B, Chaiwong N, Lordkaew S, **Rouached H**, Prom-u-thai C. Grain Zinc and Yield Responses of Two Rice Varieties to Zinc Biofortification and Water Management. **Sustainability**. 2022. 14(14), 8838; <https://doi.org/10.3390/su14148838>
- Abdul Aziz MM, Brini F, Hatem **Rouached H**, Masmoudi K. Genetically engineered crops for sustainably enhanced food production systems. **Frontiers in Plant Science**. 2022. Nov 8;13:1027828. doi: 10.3389/fpls.2022.1027828. eCollection 2022.
- Cho H, Sandhu J, Bouain N, Prom-u-thai C, **Rouached H***. Towards a Discovery of a zinc-dependent phosphate transport road in plants. **Plants**. 2022. Nov 12;11(22):3066. doi: 10.3390/plants11223066.
- Sabeem M, Abdul Aziz, MM. Kutty S, Brini F, **Rouached H**, Masmoudi K. Enhancing growth and salinity stress tolerance of date palm using *Piriformospora indica*. **Frontiers in Plant Science**. 2022. Nov 25;13:1037273. doi: 10.3389/fpls.2022.1037273. eCollection 2022.
- Jaksomsak P, Konseang S, Dell B, **Rouached H**, Prom-u-thai C. Grain Anthocyanin Concentration Varies Among Purple Rice Varieties and Growing Condition in Aerated and Flooded soil. **Molecules**. 2022. Nov 30;27(23):8355. doi: 10.3390/molecules27238355.

2021

- Therby Vale R, Lacombe B, Rhee SY, Nussaume L, **Rouached H***. Mineral nutrient signaling controls photosynthesis: focus on iron deficiency-induced chlorosis. **Trends in Plant Science**. 2021. May;27(5):502-509. doi: 10.1016/j.tplants.2021.11.005. Epub 2021 Nov 27.
- Nam HI, Shahzad Z, Dorone Y, Clowez S, Zhao K, Bouain N, Lay-Pruitt KS, Cho H, Rhee SY*, **Rouached H***. Interdependent Iron and Phosphorus Availability Controls Photosynthesis Through Retrograde Signaling. **Nature Communications**. 2021. *Faculty*

Opinions (select for highlighting in faculty opinions) Dec 10;12(1):7211. doi: 10.1038/s41467-021-27548-2.

Kaur G, Shukla V, Meena V, Kumar A, Tyagi D, Singh J, Kandoth PK, Mantri S, **Rouached H**, Pandey AK. Physiological and molecular responses to combinatorial iron and phosphate deficiencies in hexaploid wheat seedlings. *Genomics*. 2021. Nov;113(6):3935-3950. doi: 10.1016/j.ygeno.2021.09.019. Epub 2021 Oct 1.

Shukla A, Kaur M; Kanwar S, Kaur G, Sharma S, Ganguli S, Kumari V, Mazumder K, Pandey P, **Rouached H**, Rishi V, Bhandari R, Pandey AK. Wheat inositol pyrophosphate kinase TaVIH2-3B modulates cell-wall composition and drought tolerance in Arabidopsis. *BMC Biology*. 2021. Dec 11;19(1):261. doi: 10.1186/s12915-021-01198-8.

Safi A, Medici A, Szponarski W, Martin F, Clement-Vidal A, Marshall-Colon A, Ruffel S, Gaymard F, **Rouached H**, Leclercq J, Coruzzi G, Lacombe B, and Krouk G. GARP transcription factors repress Arabidopsis nitrogen starvation response via ROS-dependent and -independent pathways. *Journal of Experimental Botany*. 2021. May 4;72(10):3881-3901. doi: 10.1093/jxb/erab114.

2020

Robe K, Izquierdo E, Vignols F, **Rouached H**, Dubos C*. The coumarins: secondary metabolites playing a primary role in plants. *Trends in Plant Science*. 2020. Mar;26(3):248-259. doi: 10.1016/j.tplants.2020.10.008. Epub 2020 Nov 25.

Hanikenne M*, Esteves S.M, Fanara S, **Rouached H**. Coordinated homeostasis of essential mineral nutrients: a focus on iron. *Journal of Experimental Botany*. 2020. Mar 17;72(6):2136-2153. doi: 10.1093/jxb/eraa483.

Cho H, Bouain N, Zheng L, **Rouached H***. Plant Resilience to Phosphate Limitation: Current Knowledge and Future Challenges. *Critical Reviews in Biotechnology*. 2020. Feb;41(1):63-71. doi: 10.1080/07388551.2020.1825321. Epub 2020 Oct 7.

Chaiwong N , Bouain N, Prom-U-Thai C, **Rouached H***. Interplay between Silicon and Iron Signalling Pathways to Regulate Silicon Transporter Lsi1 Expression in Rice. *Frontiers in Plant Science*. 2020. Jul 22;11:1065. doi: 10.3389/fpls.2020.01065. eCollection 2020.

Briat JF, Gojon A, Plassard C, **Rouached H**, Lemaire G*. Reappraisal of the central role of soil nutrient availability in nutrient management in light of recent advances in plant nutrition at crop and molecular levels. *European Journal of Agronomy*. 2020. Volume 116, May 2020, 126069. doi.org/10.1016/j.eja.2020.126069

2019

Bouain N, Korte A, Satbhai SB, Nam HI, Rhee SY*, Busch W*, **Rouached H***. Systems approaches provide new insights into Arabidopsis thaliana root growth under mineral nutrient limitation. *PLOS Genetics*. 2019. Nov 6;15(11):e1008392. doi: 10.1371/journal.pgen.1008392. eCollection 2019 Nov.

Medici A, Szponarski W, Dangeville P, Safi A, Dissanayake IM, Saenchai C, Emanuel A, Rubio V, Lacombe B, Ruffel S, Tanurdzic M, **Rouached H**, Krouk G. Identification of molecular integrators shows that nitrogen actively controls the phosphate starvation response in plants. *The Plant Cell*. 2019. May;31(5):1171-1184. doi: 10.1105/tpc.18.00656. Epub 2019

- Bouain N, Krouk G, Lacombe B, **Rouached H***. Getting to the root of plant mineral nutrition: combinatorial nutrient stresses reveal emergent properties. **Trends in Plant Science**. 2019. Jun;24(6):542-552. doi: 10.1016/j.tplants.2019.03.008. Epub 2019 Apr 18.
- Kaur G, Shukla V, Kumar A, Kaur M, Goel P, Singh P, hukla A, Kaur J, Singh J, Mantri S, **Rouached H**, Pandey AK*. Genome-wide expression analysis identifies core components during iron starvation in hexaploid wheat. **Journal of Experimental Botany**. 2019. Nov 18;70(21):6141-6161. doi: 10.1093/jxb/erz358.

2018

- Rouached H***. Red light means on for phosphorus. **Nature Plants**. 2018. Dec;4(12):983-984. doi: 10.1038/s41477-018-0300-0.
- Bouain N, Satbhai S.B, Korte A, Saenchai C, Desbrosses G, Berthomieu P, Busch W*, **Rouached H***. Natural allelic variation of the AZI1 gene controls root growth under zinc-limiting condition. **PLOS Genetics**. 2018. Apr 2;14(4):e1007304. doi: 10.1371/journal.pgen.1007304. eCollection 2018 Apr.
- Kisko M, Bouain N, Safi A, Medici A, Akkers RC, Secco D, Fouret G, Krouk G, Aarts MGM, Busch W, **Rouached H***. LPCAT controls phosphate homeostasis in a zinc-dependent manner. **eLIFE**. 2018 [Research Highlights in Nature Plants](#) Feb 17;7:e32077. doi: 10.7554/eLife.32077.
- Chaiwong N, Prom-u-thai C*, Bouain N, Lacombe B, **Rouached H***. Evidence of cross-Talks between silicon, phosphate and iron homeostasis and their effects on growth of lowland and upland rice varieties. **International Journal of Molecular Sciences**. 2018 Mar 18;19(3):899. doi: 10.3390/ijms19030899.
- Kisko M, Shukla V, Kaur M, Bouain N, Chaiwong N, Lacombe B, Pandey AK, **Rouached H***. Phosphorus transport in Arabidopsis and wheat: emerging strategies to improve P pool in seeds. **Agriculture**. 2018. 8(2):27 DOI:10.3390/agriculture8020027
- Belgaroui N, Lacombe B, **Rouached H***, Hanin M*. Phytase overexpression in Arabidopsis improves plant growth under osmotic stress and in combination with phosphate deficiency. **Scientific Reports**. 2018. 10.1038/s41598-018-19493-w

2017

- Pal S, Kisko M, Dubos C, Lacombe B, Berthomieu P, Krouk G*, **Rouached H***. TransDetect identifies a new regulatory module controlling phosphate accumulation in Arabidopsis. **Plant Physiology**. 2017. Oct;175(2):916-926. doi: 10.1104/pp.17.00568. Epub 2017 Aug 21.
- Rouached H*** and Rhee Seung Y*. System-level understanding of plant mineral nutrition in the big data era. **Current Opinion in System Biology**. 2017. V.4, August 2017, Pages 71-77
- Secco D, Whelan J, **Rouached H**, Lister R. Nutrient stress-induced chromatin changes in plants. **Current Opinion in Plant Biology**. 2017. Volume 39, October 2017, Pages 1-7
- Mongon J, Jantasorn A, Oupkaew P, Prom-u-Thai C, **Rouached H***. The Time of Flooding Occurrence is Critical for Yield Production in Rice and Vary in a Genotype-Dependent Manner. **OnLine Journal of Biological Sciences**. 2017. Volume 17 No. 2, 2017, 58-65. <https://doi.org/10.3844/ojbsci.2017.58.65>
- Mongon J, Chaiwong N, Bouain N, Prom-u-thai C, Secco D, **Rouached H***. Phosphorus and iron deficiencies influences rice shoot growth in an oxygen dependent manner: insight

from upland and lowland rice. [International Journal of Molecular Sciences](#). 2017. hal-01595474 , version 1. 10.3390/ijms18030607

Secco D, Bouain N, Rouached A, Promuthai C, Hanin M, Pandey AK, **Rouached H***. Phosphate, phytate and phytases in plants: from fundamental knowledge gained in Arabidopsis to potential biotechnological applications in wheat. [Critical Reviews in Biotechnology](#). 2017. Nov;37(7):898-910. doi: 10.1080/07388551.2016.1268089. Epub 2017 Jan 12.

2016

Heuer S*, Gaxiola R, Schilling R, Herrera-Estrella L, López-Arredondo D, Wissuwa M, Delhaize E, **Rouached H**. Improving phosphorus use efficiency -a complex trait with emerging opportunities. [The Plant Journal](#). 2016. Jun;90(5):868-885. doi: 10.1111/tpj.13423. Epub 2017

Rouached H*. Phosphorus in Agriculture: Need for Efficient Use and Re-Use. [Journal of Crop Research and Fertilizers](#). 2016. 10.17303/jcrf.2016.103

Saenchai C, Prom-u-thai C, Lordkaew S, **Rouached H**, and Rerkasem B. Distribution of iron and zinc in plant and grain of different rice genotypes grown under aerobic and wetland conditions. [Journal of Cereal Science](#). 2016. Volume 71, September 2016, Pages 108-115

Prom-u-thai C, Jamrus S, Jaksomsak P, **Rouached H**, and Rerkasem B. Iron, Zinc and Total Antioxidant Capacity in Different Layers of Rice Grain among Different Varieties. [International Journal of Advances in Biology](#). 2016. V. 18, Issue 6, Pages 1131 - 1136

Damiani I, ... **Rouached H**,...et al, Nod factor effects on root hair-specific transcriptome of *Medicago truncatula*: focus on plasma membrane transport systems and reactive oxygen species networks. [Frontiers in Plant Science](#). 2016. Jun 7;7:794. doi: 10.3389/fpls.2016.00794. eCollection 2016.

Saenchai C, Bouain N, Kisko M, Prom-u-thai C, Doumas P, **Rouached H***. The involvement of OsPHO1;1 in the regulation of iron transport through integration of phosphate and zinc deficiency signalling. [Frontiers in Plant Science](#). 2016. Apr 6;7:396. doi: 10.3389/fpls.2016.00396. eCollection 2016.

Belgaroui N, Berthomieu P, **Rouached H***, Hanin M*. The secretion of the bacterial phytase PHY-US417 by Arabidopsis roots reveals its potential for increasing phosphate acquisition and biomass production during cogrowth. [Plant Biotechnology Journal](#). 2016. Sep;14(9):1914-24. doi: 10.1111/pbi.12552. Epub 2016 Mar 30.

Bouain N, Doumas P, **Rouached H***. Recent advances in understanding the molecular mechanisms regulating the root system response to phosphate deficiency in Arabidopsis. [Current Genomics](#). 2016. Aug;17(4):308-4. doi: 10.2174/1389202917666160331201812.

2015

Rouached H* and Tran LSP*. Regulation of Plant Mineral Nutrition: Transport, Sensing and Signaling. Editorial. [International Journal of Molecular Sciences](#). 2015. Dec 11;16(12):29717-9. doi: 10.3390/ijms161226198.

Briat JF, **Rouached H**, Tissot N, Gaymard F and Dubos C. Integration of P, S, Fe and Zn nutrition signals in Arabidopsis thaliana: potential involvement of PHOSPHATE

STARVATION RESPONSE 1 (PHR1). *Frontiers in Plant Science*. 2015. Apr 28;6:290. doi: 10.3389/fpls.2015.00290. eCollection 2015.

Rouached H*, Pal S, Rachmilevitch S, Libault M, Tran LS P. Plants Coping Abiotic and Biotic Stresses: A Tale of Diligent Management. *BioMed Research International*. 2015

Kisko M, Bouain N, Rouached A, Choudray PS. and **Rouached H***. Molecular mechanisms of phosphate and zinc signaling crosstalk in plants: phosphate and zinc loading into root xylem in Arabidopsis. *Environmental and Experimental Botany*. 2015. 2015:754754. doi: 10.1155/2015/754754. Epub 2015 Jan 5.

2014

Belgaroui N, Zaidi I, Farhat A, Chouayekh H, Bouain N, Chay S, Curie C, Mari S, Masmoudi K, Davidian JC, Berthomieu P, **Rouached H***. and Hanin M*. Overexpression of the bacterial phytase US417 in Arabidopsis reduces the concentration of phytic acid and reveals its involvement in the regulation of sulfate and phosphate homeostasis and signaling. *Plant and Cell Physiology*. 2014. Nov;55(11):1912-24. doi: 10.1093/pcp/pcu122. Epub 2014 Sep 16.

Bouain N, Shahzad Z, Rouached A, Khan GA, Berthomieu P, Abdelly C, Poirier Y. and **Rouached H***. Phosphate and zinc transport and signalling in plants: toward a better understanding of their homeostasis interaction. *Journal of Experimental Botany*. 2014. Nov;65(20):5725-41. doi: 10.1093/jxb/eru314. Epub 2014 Jul 30.

Bouain N, Kisko M, Rouached A, Dauzat M, Lacombe B, Belgaroui N, Ghnaya T, Davidian JC, Berthomieu P, Abdelly C. and **Rouached H***. Phosphate/zinc Interaction Analysis in Two Lettuce Varieties Reveals Contrasting Effects on Biomass, Photosynthesis and Dynamics of Pi Transport. *BioMed Research International*. 2014. 2014:548254. doi: 10.1155/2014/548254. Epub 2014 Jun 15.

Shahzad Z, **Rouached H**, and Rakha A. Combating Mineral Malnutrition through Iron and Zinc Biofortification of Cereals. *Comprehensive Reviews in Food Science and Food Safety*. 2014. May;13(3):329-346. doi: 10.1111/1541-4337.12063.

Khan GA, Bouraine S, Wege S, Li Y, de Carbonnel M, Berthomieu P, Poirier Y. and **Rouached H***. Coordination between zinc and phosphate homeostasis involves the transcription factor PHR1, the phosphate exporter PHO1, and its homologue PHO1;H3 in Arabidopsis. *Journal of Experimental Botany*. 2014 **Cover page of Volume 65, Issue 3 March 2014**. Mar;65(3):871-84. doi: 10.1093/jxb/ert444. Epub 2014 Jan 13.

2013

Rouached H*. Recent developments in plant zinc homeostasis and the path toward improved biofortification and phytoremediation programs. *Plant Signal & Behavior*. 2013. Jan;8(1):e22681. doi: 10.4161/psb.22681. Epub 2012 Dec 6.

2012

Arpat AB, Magliano P, Wege S, **Rouached H**, Stefanovic A, and Poirier Y. Functional expression of PHO1 to the Golgi and trans-Golgi network and its role in export of inorganic phosphate. *The Plant Journal*. 2012. Aug;71(3):479-91. doi: 10.1111/j.1365-313X.2012.05004.x. Epub 2012 May 25.

2011

- Rouached H***. Multilevel Coordination of Phosphate and Sulfate Homeostasis in Plants. **Plant Signal Behavior**. 2011. Jul;6(7):952-5. doi: 10.4161/psb.6.7.15318.
- Rouached H**, Stefanovic A, Secco D, Vidoudez C, Gout E, Bligny R, and Poirier Y*. Uncoupling phosphate deficiency from its effects on growth and gene expression via PHO1 signaling in Arabidopsis. **Plant Journal**. 2011 F1000Prime Recommendations, Dissents and Comments for [Rouached H et al, Plant J 2011 , 65(4):557-70]. In F1000Prime, 03 Apr 2018; F1000Prime.com/9174956 . Feb;65(4):557-70. doi: 10.1111/j.1365-313X.2010.04442.x.
- Rouached H**, Secco D, Arpat B, Poirier Y*. The transcription factor PHR1 plays a key role in regulation of sulfate inter-organ flux upon phosphate starvation in Arabidopsis. **BMC Plant Biology**. 2011. Jan 24;11:19. doi: 10.1186/1471-2229-11-19.

2005-2010

- Rouached H**, Arpat A.B, Poirier Y. Regulation of phosphate starvation response in plants: signaling players and crosstalks. **Molecular Plant**. 2010. Mar;3(2):288-99. doi: 10.1093/mp/ssp120. Epub 2010 Feb 8.
- Rouached H***, Secco D, and Arpat A.B. Regulation of ion homeostasis in plants: Current approaches and future challenges. **Plant Signal & behavior**. 2010. May;5(5):501-2. doi: 10.4161/psb.11027. Epub 2010 Apr 12.
- Rouached H***. Efficient procedure for site-directed mutagenesis mediated by PCR insertion of a novel restriction site. **Plant Signal & Behavior**. 2010. Dec;5(12):1547-8. doi: 10.4161/psb.5.12.13994. Epub 2010 Dec 1.
- Rouached H***, Secco D, Arpat A.B. Getting the most of sulfate from soil: Regulation of sulfate uptake transporters in Arabidopsis. **Journal of Plant Physiology**. 2009. Jun 1;166(9):893-902. doi: 10.1016/j.jplph.2009.02.016. Epub 2009 Apr 17.
- Rouached H***, Wirtz M, Alary R, Hell R, A.B Arpat, Davidian JC, Fourcroy P, Berthomieu P. Differential regulation of the expression of two high affinity sulfate transporters, SULTR1.1 and SULTR1.2, in Arabidopsis. **Plant Physiology**. 2008. Jun;147(2):897-911. doi: 10.1104/pp.108.118612. Epub 2008 Apr 9.
- El Kassis E, Cathala N, **Rouached H**, Fourcroy P, Berthomieu P, Terry N, Davidian JC. Characterization of a selenate-resistant *Arabidopsis thaliana* mutant: root growth as a potential target for selenate toxicity. **Plant Physiology**. 2007. Mar;143(3):1231-41. doi: 10.1104/pp.106.091462. Epub 2007 Jan 5.
- Stefanovic A, Ribot C, **Rouached H**, Wang Y, Chong J, Belbahri L, Delessert S, Poirier Y. Members of the PHO1 gene family show limited functional redundancy in phosphate transfer to the shoot and are regulated by phosphate deficiency via distinct pathways. **Plant Journal**. 2007. un;50(6):982-94. doi: 10.1111/j.1365-313X.2007.03108.x. Epub 2007 Apr 25.
- Rouached H**, Berthomieu P, El Kassis E, Cathala N, Catherinot V, Labesse G, Davidian JC and Fourcroy P. Structural and functional analysis of the C-terminal STAS domain of the *Arabidopsis thaliana* sulfate transporter SULTR 1.2. **Journal of Biological Chemistry**. 2005. Apr 22;280(16):15976-83. doi: 10.1074/jbc.M501635200. Epub 2005 Feb 16.

OTHER PUBLICATIONS: Book, Book chapters, and preprint

- 2023.** Co-Editor of book on: **Plant Phosphorus Nutrition - CRC press- Taylor and Francis group**. Publication expected in September 2023.
- 2020.** Gazaldeep K, Shukla V, Meena V, Kumar A, Singh J, Kandoth P, Mantri S, **Rouached H**, Pandey AK. [Underpinning wheat physiological and molecular responses to co-occurring iron and phosphate deficiency stress](#). *BioRxiv*.
<https://doi.org/10.1101/2020.05.26.117101>
- 2017.** Bouain N, Satbhai S.B, Saenchai C, Desbrosses G, Berthomieu P, Busch W*, **Rouached H***. [Zinc availability modulates plant growth and immune responses via AZI1](#). *BioRxiv*.
<https://doi.org/10.1101/166645>
- 2013.** **Rouached H***. and Poirier Y. Uncoupling Phosphate Deficiency from its Effects on Growth and Gene Expression in Plants. [XVII. International Plant Nutrition Colloquium • pp 74-75 Istanbul / Turkey](#).
- 2005.** Fourcroy P, **Rouached H**, Berthomieu P, El Kassis E, Cathala N, Catherinot V, Labesse G, Davidian J. Involvement of the STAS domain in the regulation of the *Arabidopsis thaliana* sulfate transporter SULTR1.2. Sulfur transport and assimilation in plants in post-genomic area. [Backhuys publishers, Leiden, The Netherlands](#).

Talks & organization of concurrent sessions

Invited speaker

2023

The 13th Cold Spring Harbor Laboratory meeting. Plant Genomes, Systems Biology & Engineering. New York, USA

The 7th International Conference on “Plant Abiotic Stress Tolerance”. Vienna, Austria
“How do plants make sense of multiple nutrient stresses?”

American Society of Plant Biologists. Savannah GA, United States.
“Plant growth stimulation by elevated CO₂ depends on phosphorus homeostasis in chloroplasts”

The Society for Experimental Biology’s Annual Conference. Edinburgh, United Kingdom.
“Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling”

The 33rd International Conference on Arabidopsis Research. Chiba, Japan
“Protecting plant nutrition from the effects of climate change”

The 19th International Workshop on Plant Membrane Biology. Taipei, Taiwan
“Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling”

International Conference Food Nutritional Security. Mohali, India
“Protecting plant nutrition from the effects of climate change”

2022

The 20th International Symposium on Iron Nutrition and Interactions in Plants.
Reims, France
“Chloroplast retrograde signaling to adapt photosynthesis to iron availability”

The Society for Experimental Biology’s Annual Conference. Montpellier, France
“Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling”

The European Iron Club 2022. Oxford, United Kingdom
“Chloroplast retrograde signaling to adapt photosynthesis to iron availability”

Plant and Animal Genome XXIX Conference. San Diego, United States
“Discovery of a New Pathway That Connects Iron Deficiency and Photosynthesis through Systems Biology Approaches”

The International Conference on Arabidopsis Research. Belfast, Northern Ireland
“Discovery of a new pathway that connects iron deficiency and photosynthesis through systems biology approaches”

2021

Federation of European Societies of Plant Biology and European Plant Science Organisation (FESPB-EPSO) Plant Biology Europe Conference. Turin, Italy
“Getting to the root of plant mineral nutrition: system genetics to study how plants make sense of various nutrient signals”

European Union. CropBoosterP “Preparatory action to Boost Global Crop Yield for Food & Nutrition Security and fueling a Bioeconomy”. Versailles, France
“Resilience: How to improve plant resilience to stress: lessons from nutrient homeostatic interactions”

2018

The First international plant systems biology meeting. Roscoff (Brittany), France.
“Systems biology to help solve the mystery of mineral nutrient signaling crosstalks”

The International Plant Molecular Biology. Montpellier, France.
“Interactions Between Plant Mineral Nutrients — Zinc And Phosphate, A Dynamic Duo”

2015

International Conference on Plant Growth, Nutrition & Environment Interactions.

Vienna, Austria

“Regulation of ion homeostasis in plants: Current approaches and future challenges”

2012

Journées de l'Association Tunisienne de Biotechnologie. Mehdia, Tunisia

“Regulation of phosphate starvation responses in plants: The emergence of a new signaling player”

Contributed Presentation:

2022

The 19th International Plant Nutrition Colloquium (IPNC) 2022. State of Paraná, Brazil.

“Uncovering The Molecular Basis Of Photosynthesis Regulation By Nutrient Signals”

The 7th Symposium on Phosphorus in Soils and Plants (PSP7) Montevideo – Uruguay.

Subcellular Phosphorus Distribution Controls Plant Growth Under High CO₂.

2013

The Society for Experimental Biology's (SEB) Annual Conference. Valencia, Spain

Can we maintain plant growth capacity while decreasing nutrient accumulation? Case of phosphorus.

The 17th International Plant Nutrition Colloquium (IPNC). Istanbul, Turkey

Uncoupling phosphate deficiency from its effects on growth and gene expression in plants.

Academic seminars:

- 2022. Department of Plant Biology. Carnegie Institution for Science. Stanford, CA, USA.
- 2022. Nanjing Agricultural University, Nanjing, Jiangsu, China.
- 2022. Brussels Institute for Advanced Studies (BrIAS), Brussels, Belgium.
- 2019. College of Life Sciences Nanjing Agricultural University, Nanjing, China.
- 2019. Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China.
- 2019. College of Biological Sciences China Agricultural University, Beijing, China.
- 2018. Department of Crop and Soil Sciences. Washington State University. USA.
- 2016. Department of Plant Biology and Genome Center. UC- Davis, USA.
- 2016. Gregor Mendel Institute, Vienna, Austria.
- 2016. Department of Plant Biology. Carnegie Institution for Sciences. Stanford, USA.
- 2015. University of Chiang Mai, Chiang Mai, Thailand.
- 2012. Plant Biology Institute. Paris-Sud- Orsay University, France
- 2011. Molecular Plant Biology Institute – Strasbourg University, France.