

SCIENTIFIC PROGRAMME

Saturday 4th March 2017

- 17.00 Registration and Poster Assembly
- 19.30 Welcome to Meeting / Welcome Buffet

Sunday 5th March 2017

The Conference is Open!

Session 1 The Environment

*Denotes presentation by a student.

Chair: *Xabier Lopez* (Euskal Herriko University, Donostia, Spain)

08.55 Introduction by the Chair

9.00 Platform 1

The unique inorganic chemistry of hydroxyaluminosilicates

Christopher Exley (Keele University, United Kingdom)

9.20 Discussion

9.30 Platform 2

Aluminium buffering in soil solutions

Igor Povar (Institute of Chemistry of the Academy of Sciences of Moldova)

9.50 Discussion

10.00 Platform 3

Aluminium effects on marine phytoplankton: Implications for a revised iron hypothesis – aluminium hypothesis

Linbin Zhou (Chinese Academy of Sciences, Guangzhou, China)

10.20 Discussion

10.30 **COFFEE**

10.50 Platform 4

Temporal changes in the acidification status of mountainous forest soils with an emphasis on aluminium

Ondřej Drábek (Czech University of Life Sciences Prague, Czech Republic)

11.10 Discussion

11.20 Oral Poster 1*

Behaviour of aluminium in forest soils with respect to content and speciation of low molecular mass organic acids (LMMOA)

Petra Hubová (Czech University of Life Sciences Prague, Czech Republic)

11.25 Discussion

11.30 Platform 5

Interaction of acidophilic microbial cells with dissolved aluminium and silica under anoxic conditions: A geochemical perspective with emphasis on biomineralisation

Javier Sánchez-España (Spanish Geological Survey, Madrid, Spain)

11.50 Discussion

12.00 Platform 6

Evaluation of aluminium mobility using fungal exometabolites and the application of this method to soils

Martin Urík (Comenius University in Bratislava, Slovakia)

12.20 Discussion

12.30 Oral Poster 2*

Evaluation of aluminium leaching from various natural and synthetic phases as affected by the presence of various species of *Aspergillus*

Filip Polák (Comenius University in Bratislava, Slovakia)

12.35 Discussion

12.40 Platform 7*

Exotic bamboo affects mineral dissolution in an acid soil of the savannas domain in Brazil?

Cristiane D. Sarmento (Federal University of Minas Gerais, Belo Horizonte, Brazil)

13.00 Discussion

13.10 **LUNCH**

Session 2

Plants

*Denotes presentation by a student.

Denotes a 15+5 minute Platform Presentation

Chair: *Gea Guerriero* (Luxembourg Institute of Science and Technology, Luxembourg)

14.25 Introduction by the Chair

14.30 Platform 8*

Using two different fluors to identify the location of aluminium in plant cells

Jacqueline Cerdas-Solano (CICY, Mérida, México)

14.50 Discussion

15.00 Platform 9

The effects of aluminium toxicity on caffeine production and signal transduction mechanisms in cell suspensions of *Coffea arabica*

Teresa Hernández-Sotomayor (CICY, Mérida, México)

15.20 Discussion

15.30 Oral Poster 3*

Relationship between aluminium stress and caffeine biosynthesis in cell suspensions of *Coffea Arabica* L.

Roberto Pech-Kú (CICY, Mérida, México)

15.35 Discussion

15.40 Oral Poster 4*

Role of superoxide dismutase activity in aluminium tolerance in suspension cells of *Coffea Arabica* L.

Laura Esquivel-Hernández (CICY, Mérida, México)

15.45 Discussion

15.50 Platform 10*

Measuring extracellular trapping of metals by plant root border cells

David Huskey (University of Arizona, Tucson, USA)

16.10 Discussion

16.20 **TEA**

16.50 Platform 11

Proteomic changes in roots of *Urochloa decumbens* during the activation phase of aluminium tolerance

Charlotte Poschenrieder (Autonomous University of Barcelona, Spain)

17.10 Discussion

17.20 Platform 12[#]

A chimeric ALMT-type malate transporter shows enhanced response to aluminium and lanthanide ions

Takayuki Sasaki (Okayama University, Japan)

17.35 Discussion

17.40 Platform 13[#]

Avoidance mechanism involving ROS production in plant cells under aluminium stress

Yoko Yamamoto (Okayama University, Japan)

17.55 Discussion

18.00 Oral Poster 5*

A new mechanism of aluminium-induced cell death involving the vacuolar processing enzyme in both cultured-cell and root systems of tobacco

Koki Karia (Okayama University, Japan)

18.05 Discussion

18.10 Oral Poster 6

A positive relationship between aluminium in chloroplasts and the photosynthetic rate of an aluminium hyper-accumulator

Leide de Andrade (Embrapa Cerrados, Planaltina, Brazil)

18.15 Discussion

18.20 **END OF FIRST DAY**

20.15 **DINNER**

21.15 **Social Event**

Monday 6th March 2017

Session 3
Silicon

*Denotes presentation by a student.

Chair: *Ondřej Drábek* (Czech University of Life Sciences Prague, Czech Republic)

08.25 Introduction by the Chair

08.30 Platform 14

Silicon and plants: more than just a “tonic”

Gea Guerriero (Luxembourg Institute of Science and Technology, Luxembourg)

08.50 Discussion

09.00 Platform 15

Silica deposition in giant horsetail from the Peruvian Amazon

Christopher Exley (Keele University, United Kingdom)

09.20 Discussion

09.30 Platform 16

SISAFE® platform: an innovative nanoparticle drug delivery technology

Flavia Sutura (SiSaf Ltd. Belfast, United Kingdom)

09.50 Discussion

10.00 **COFFEE**

Session 4
Cell and Animal Models

*Denotes presentation by a student.

Chair: *Antonio BS Poleo* (Affiliation)

10.30 Platform 17

Tissue aluminium accumulation in the presence of silicon

Denise Bohrer (Federal University of Santa Maria, Brazil)

10.50 Discussion

11.00 Platform 18

Adjuvant effects from aluminum-containing vaccines are controversial enough: chronic dietary aluminum ingestion produces adverse adjuvant autoimmune inflammatory effects in the small intestine

Judie Walton (University of New South Wales, Australia)

11.20 Discussion

11.30 Platform 19*

Aluminum exposure for 60 days impairs spermatogenesis and sperm quality in rats

Caroline Martinez (Federal University of Pampa, Uruguaiana, Brazil)

11.50 Discussion

12.00 Oral Poster 7*

Cell-specific response to particulate matter: Potential role of metals such as aluminum, copper, and iron

Jaaziel Castro (Western University of Health Sciences, California, USA)

12.05 Discussion

12.10 Oral Poster 8*

***Ilex paraguariensis*: a potential antioxidant addressing aluminum toxicity in an experimental model of Alzheimer's disease**

Carla Alves (Federal Institute of Education, Science and Technology of Rio Grande do Sul (IFRS), Sertão, Brazil)

12.15 Discussion

12.20 Platform 20

Progressive inflammatory pathology in the brain and retina of aluminium-fed 5xFAD transgenic mice

Yuhai Zhao (LSU Health Sciences Center, New Orleans, USA)

12.40 Discussion

12.50 Oral Poster 9*

Genome wide transcriptome analysis in the hippocampus of aluminium-treated rats

Yirong Xu (Shanxi Medical University, Taiyuan, China)

12.55 Discussion

13.00 Platform 21

A proposed approach to the assessment of aluminum burden in the central nervous system

John Savory (University of Virginia, Charlottesville, USA)

13.20 Discussion

13.30 **LUNCH**

FREE AFTERNOON/Excursion

20.00 **DINNER**

Tuesday 7th March 2017

Session 5
Human Exposure

*Denotes presentation by a student.

Denotes a 15+5 minute Platform Presentation

Chair: *Teresa Hernández-Sotomayor* (CICY, Mérida, México)

8.25 Introduction by the Chair

8.30 Platform 22

Aluminium and breast cancer: an overview of the current status

Philippa Darbre (University of Reading, United Kingdom)

08.50 Discussion

09.00 Platform 23*

Breast cancer and the use of underarm hygiene products with aluminium-salts: A case control study

Caroline Linhart (Medical University of Innsbruck, Austria)

09.20 Discussion

09.30 Platform 24[#]

Physician versus scholar: the British controversy about aluminium in the 1930's

Florence Hachez-Leroy (Centre de recherches historiques (UMR 8558, EHESS/CNRS), Paris, France)

09.45 Discussion

09.50 Platform 25[#]

Magic bullet or snake oil? Aluminium dust and the prevention of silicosis in Western Australia, 1948-1963

Criena Fitzgerald (University of Western Australia, Perth, Australia)

10.05 Discussion

10.10 Platform 26[#]

The McIntyre powder project: A retrospective study of the health effects of respirable aluminium dust in a cohort of Ontario miners

Janice Martell (OHCOW, Ontario, Canada)

10.25 Discussion

10.30 **COFFEE**

11.00 Platform 27

In vivo measurement of aluminium in bone; recent experience and current capabilities

Fiona McNeill (McMaster University, Hamilton, Canada)

11.20 Discussion

11.30 Platform 28

Classical fluorescent molecular probes for the identification of aluminium and related neuropathologies in familial Alzheimer's disease (fAD) brain tissue

Matthew Mold (Keele University, United Kingdom)

11.50 Discussion

12.00 Platform 29

Association between H3K4me3/BDNF and cognitive function in workers occupationally exposed to aluminium

Qiao Niu (Shanxi Medical University, Taiyuan, China)

12.20 Discussion

12.30 Oral Poster 10*

Impact of occupational aluminium exposure on cognitive function and lymphocyte glutamate receptor protein

Pei Ren (Shanxi Medical University, Taiyuan, China)

12.35 Discussion

12.40 Platform 30[#]

Thomas M Riddick, an unsung pioneer of the aluminium age

Esko Meloni (Enopop, Tmi, Finland)

12.55 Discussion

13.00 **LUNCH**

Session 6

Human Exposure cont.

*Denotes presentation by a student.

All Platform Presentations in this final session are 15+5 minute talks.

Chair: *Philippa Darbre* (University of Reading, United Kingdom)

14.15 Introduction by the Chair

14.20 Platform 31

Mapping the affinity of aluminum to biomolecules, using a computational approach.

Xabier Lopez (Euskal Herriko University, Donostia, Spain)

14.35 Discussion

14.40 Platform 32

Assessing the solubility of aluminium adjuvants in the lysosomal compartment and the consequent impact upon the viability of phagocytic immune populations

Emma Shardlow (Keele University, United Kingdom)

14.55 Discussion

15.00 Platform 33*

Cognitive and behavioural studies in sheep over immunized with aluminium-containing vaccines

Javier Asín (University of Zaragoza, Spain)

15.15 Discussion

15.20 Platform 34

Transcriptomic analysis of aluminum effects on intestinal tissues from control and Crohn's disease patients.

Mathilde Body-Malapel (University of Lille, France)

15.35 Discussion

15.40 Platform 35

Aluminium, mercury and microRNA (miRNA) signalling in autism spectrum disorder (ASD)

Walter Lukiw (LSU Health Sciences Center, New Orleans, USA)

15.55 Discussion

16.00 Platform 36

Alum adjuvant neurotoxicity and its biodisposition assessment in mice following intramuscular injections using nanodiamond technology

Housam Eidi (UBC, Vancouver, Canada)

16.15 Discussion

16.20 Platform 37

Macrophagic myofasciitis-associated cognitive dysfunction: A reappraisal of neuropsychological profile

Jérôme Authier (Paris Est-Creteil University, Creteil, France)

16.35 Discussion

16.40 **TEA**

Final Session Chair: *Christopher Exley* (Keele University, United Kingdom)

JD Birchall Lecture

17.25 **Introduction by Chair**

17.30 **Macrophagic myofasciitis: Aluminium hydroxide and susceptibility genes**

Romain Gherardi (Paris Est-Creteil University, Creteil, France)

18.20 Discussion

18.30 **CONCLUSION OF MEETING**

20.00 Conference Dinner

List of Additional Posters

*Denotes presentation by a student.

Poster 1

Distribution of aluminium soluble and insoluble, organic and inorganic chemical species in natural aqueous systems

Igor Povar (Institute of Chemistry of the Academy of Sciences of Moldova)

Poster 2

Relationship among the nitrogen source and aluminium toxicity in suspension cells of *Coffea arabica* L.

Muñoz-Sánchez J. Armando (CICY, Mérida, México) E-mail: arms@cicy.mx

Poster 3

NMDAR- ERK signal pathway mediates expression of H3K9ac, H3K9me2 in the hippocampus of chronically aluminium treated rats

Qiao Niu (Shanxi Medical University, Taiyuan ,China)

Poster 4*

Long-term studies in subcutaneous reactions following inoculation with aluminium-containing products in sheep

Javier Asín (University of Zaragoza, Spain)

Poster 5*

Human exposure to aluminium: How much aluminium is in our everyday diet?

Raquel Rodriguez (University of Toledo, Spain)

Poster 6

Non-linear dose-response of aluminium hydroxide adjuvant particles: selective low dose neurotoxicity

Housam Eidi (UBC, Vancouver, Canada)

Poster 7*

Characterization of substituent effects and binding features of different Al(III)-chelator complexes

Gabriele Dalla Torre (Euskal Herriko University, Donostia, Spain)

Poster 8

Predictive value of cerebral FDG-PET for diagnosing aluminium hydroxide-induced Macrophagic Myofasciitis (MMF)

Jérôme Authier (Paris Est-Creteil University, Creteil, France)

Poster 9

Aluminium exposure and markers of iron homeostasis in human breast cells *in vitro*

Philippa Darbre (University of Reading, United Kingdom)

Poster 10*

Aluminum exposure promotes vascular dysfunction and increases blood pressure in rats: a concerted action of NAD(P)H oxidase and COX-2

Caroline Martinez (Federal University of Pampa, Uruguiana, Brazil)

Poster 11

A technique for *in vivo* bone aluminium measurement: present performance and prospects for a transportable system

Fiona McNeill (McMaster University, Hamilton, Canada)

Poster 12

Evaluation of aluminium levels in Alzheimer's Disease subjects involved in a ketogenic diet study

Angela Juby (University of Alberta, Edmonton, Canada)

Poster 13*

An *in vitro* model of the gastrointestinal absorption of aluminium in human infants.

Isabel Rodriguez Nunez-Milara (Keele University, United Kingdom)