SCIENTIFIC PROGRAMME

Saturday 23rd February 2013

17.00 Registration and Poster Assembly

19.30 Welcome to Meeting / Welcome Buffet

Sunday 24th February 2013

The Conference is Open!

Session 1

*Denotes presentation by a student.

Chair: ***Tamas Kiss*** (Szeged University, Szeged, Hungary)

8.25 Introduction by the Chair

8.30 Platform 1
Natural organic matter adsorption on a lateral AlOOH surface elucidated with *ab initio* molecular dynamics.
Dominique Costa (ENSCP Chemie-Paristech, Paris, France)

8.50 Discussion

9.00 Oral Poster 1
Adsorption of inositol phosphate on gibbsite (γ-$Al(OH)_3$).
Oleg Antzutkin (Luleå University of Technology, Luleå, Sweden)

9.05 Discussion

9.10 Platform 2
Interaction between Al^{3+} and 2,3-dihydroxyterephthallic acid as a model compound for Inogashira fulvic acid.
Takushi Yokoyama (Kyushu University, Higachi-ku, Fukuoka, Japan)

9.30 Discussion

9.40 Oral Poster 2*
Interaction between Al^{3+} and simple dicarboxylic acids at pH 3.
Mayumi Etou (Kyushu University, Higachi-ku, Fukuoka,Japan)

9.45 Discussion

9.50 Platform 3
Detecting toxicant interactions in mixtures of toxicants. Special consideration of ionic toxicants.
Thomas Kinraide (USDA, Beaver, West Virginia, USA)

10.10 Discussion

10.20 **COFFEE**

10.40 Platform 4
Computer-aided speciation of small aluminium silicate clusters in aqueous environments.
Giorgio Lanzani (University of Oulu, Oulu, Finland)

11.00 Discussion

11.10 Oral Poster 3
Aluminium-silicon interactions in mild pH and ionic strength conditions
Jaakko Rämö (University of Oulu, Oulu, Finland)

11.15 Discussion

11.20 Oral Poster 4
Computer simulations of the structure, formation and growth of hydroxyaluminosilicates, at the level of individual and collections of molecules
James Beardmore (Keele University, United Kingdom)

11.25 Discussion

11.30 Platform 5
Can Al^{3+} promote the Fenton reaction and oxidative stress?
Xabier Lopez (Euskal Herriko University, Donostia, Basque Country)

11.50 Discussion

12.00 Oral Poster 5
Unveiling the coordination of aluminium to amyloid-β peptide with computational chemistry.
Jon Mujika (Euskal Herriko University, Donostia, Basque Country)

12.05 Discussion

12.10 Platform 6
Hydroxypyrones, a fascinating family of chelating agents for Al(III).
Guido Crisponi (Citadella University, Cagliari, Italy)

12.30 Discussion

12.40 Oral Poster 6
Complex formation equilibria of substituted phenols with Al^{3+} and Fe^{3+}.
Miriam Crespo-Alonso (Citadella University, Cagliari, Italy)

12.45 Discussion

12.50 Oral Poster 7*
Complexation of Al(III) with hydroxypyridine(di)carboxylic acids as new possible chelating agents in neurodegenerative diseases.
Éva Sija (University of Szeged, Szeged, Hungary)

12.55 Discussion

13.00 **LUNCH**

Session 2

*Denotes presentation by a student.

Chair: ***Lubos Boruvka*** (Czech University of Life Science, Prague, Czech Republic)

14.15 Introduction by the Chair

14.20 Platform 7
Molecular mechanisms of crop adaptation to acid soils.
Leon Kochian (USDA-ARS, Cornell University, New York, USA)

14.40 Discussion

14.50 Platform 8
Cellular distribution of aluminium and other elements in leaves of native plant species of Brazilian Cerrados.
Leide de Andrade (Embrapa Cerrados, Planaltina, Brazil)

15.10 Discussion

15.20 Oral Poster 8*
Effect of aluminium ions on hydrangea sepals and viburnum drupes.
Blaine Groat (Virginia Military Institute, Lexington, Virginia, USA)

15.25 Discussion

15.30 Oral Poster 9
Aluminium, iron and manganese, do they limit the determination of anionic substances by ion chromatography?
Ondřej Drábek (Czech University of Life Sciences, Prague, Czech Replublic)

15.35 Discussion

15.40 Platform 9
Amelioration of iron toxicity, a mechanism for aluminium-induced growth stimulation in tea plants.
Charlotte Poschenrieder (Universidad Autónoma de Barcelona, Spain)

16.00 Discussion

16.10 **TEA**

16.30 Oral Poster 10
Long term changes in aluminium concentrations and fluxes in Czech streams recovering from acidification.
Pavel Kram (Czech Geological Survey, Prague, Czech Republic)

16.35 Discussion

16.40 Platform 10
Effect of salicylic acid on the attenuation of aluminium toxicity in cell suspensions of *Coffea arabica* L.
Teresa Hernández-Sotomayor (CICY, Mérida, México)

17.00 Discussion

17.10 Oral Poster 11
The role of diacylglycerol in aluminium toxicity in plants.
Přemysl Pejchar (Academy of Sciences of Czech Republic, Prague, Czech Republic)

17.15 Discussion

17.20 Platform 11
Aluminium-induced cell death involves both mitochondria and the vacuole in plant cells.
Yoko Yamamoto (Okayama University, Kurashiki, Japan)

17.40 Discussion

17.50 Oral Poster 12
Influence of Al^{3+} on light-induced membrane potential changes in *Nitellopsis obtusa* cells.
Vilma Kisnierienė (Vilnius University, Vilnius, Lithuania)

17.55 Discussion

18.00 Platform 12
Physiological and oxidative responses of two *Avena sativa* genotypes and *Cucumis sativis* seedlings to aluminium in nutrient solution.
Maria Rosa Schetinger (Federal University of Santa Maria, Santa Maria, Brazil)

18.20 Discussion

18.30 Oral Poster 13*
Differential speed of activation in antioxidant systems in three oat genotypes.
Luciane Pereira (Federal University of Santa Maria, Santa Maria, Brazil)

18.35 Discussion

18.40 Oral Poster 14*
The bioleaching of aluminium from solid aluminium oxide by a filamentous fungus.
Ivana Pifkova (Comenius University in Bratislava, Bratislava, Slovakia)

18.45 Discussion

18.50 **END OF FIRST DAY**

20.15 **DINNER**

21.15 **POSTER SESSION AND WINE TASTING**

Monday 25th February 2013

Session 3

*Denotes presentation by a student.

Chair: ***Paula Goncalves*** (University of Aveiro, Aveiro, Portugal)

8.25 Introduction by the Chair

8.30 Platform 13*
Comparative study on the binding of Al^{3+} and nano-Al_{13} with salmon sperm DNA and calf thymus DNA.
Fei Ma (Nanjing Normal University, Nanjing, China)

8.50 Discussion

9.00 Oral Poster 15
Carbon nanomaterials as modified electrodes for the determination of trace aluminium (III) in biological fluids using 8-hydroxyquinone.
Xiao Di Yang (Nanjing Normal University, Nanjing, China)

9.05 Discussion

9.10 Platform 14*
Cholesterol effect on (Na^+K^+)ATPase inhibition by submillimolar aluminium.
Madina Artykbayeva (University of Aveiro, Aveiro, Portugal)

9.30 Discussion

9.40 Oral Poster 16
Acute and chronic neurotoxicity of aluminium oxide nanoparticles in mice.
Qinli Zhang (Shanxi Medical University, Taiyuan, China)

9.45 Discussion

9.50 Oral Poster 17
Aluminium and calcium homeostasis; influence of insulin-like growth factor 1 (IGF-1) on intestinal absorption.
Daniel Orihuela (Universidad Nacional del Litoral, Sante Fe, Argentina)

9.55 Discussion

10.00 **COFFEE**

10.20 Platform 15
Age dependence in the accumulation and elimination of aluminium in rats.
Denise Bohrer (Federal University of Santa Maria, Brazil)

10.40 Discussion

10.50 Platform 16
Effect of long term exposure to aluminium and a high fat diet on NTPDase and 5'-nucleotidase activities in lymphocytes and platelets of rats.
Rosilene Kaizer Perin (Instituto Federal de Educação Ciência e Tecnologia do Rio Grande do Sul, Brazil)

11.10 Discussion

11.20 Platform 17
No effect of long term low dosage of Al maltolate towards Th2 immune response in young rats.
Guoo-Shyng Wang Hsu (Fu-Jen Catholic University,Taipei, Taiwan)

11.40 Discussion

11.50 Platform 18
Aluminium adjuvant-induced mitochondrial alterations.
Håkan Eriksson (Malmö University, Malmö, Sweden)

12.10 Discussion

12.20 Platform 19
Administration of aluminium in vaccine-relevant exposures in neonatal mice is associated with long term adverse neurological outcomes.
Christopher Shaw (University of British Columbia, Vancouver, Canada)

12.40 Discussion

12.50 Platform 20
Aluminium enhances inflammation and decreases mucosal healing in experimental colitis in mice.
Mathilde Body-Malapel (University of Lille 2, Lille, France)

13.10 Discussion

13.20 **LUNCH**

FREE AFTERNOON

20.00 **DINNER**

21.15 Film (English Language Premiere)

Dirty Little Secret

The Aluminium Files

A Film by Bert Ehgartner

Tuesday 26th February 2013

Session 4

*Denotes presentation by a student.

Chair: ***David Chettle*** (McMaster University, Hamilton, Canada)

8.25 Introduction by the Chair

8.30 Platform 21
Excessive aluminium accumulation in the bones of patients on long term parenteral nutrition.
Patrick Parsons (State University of New York, Albany, USA)

8.50 Discussion

9.00 Oral Poster 18
Assessing inter-laboratory performance for serum Al in the New York State Proficiency Testing programme; implications for monitoring exposure to Al in parenteral nutrition patients.
Pamela Kruger (New York State Department of Health, Albany, USA)

9.05 Discussion

9.10 Oral Poster 19*
Hot watery infusion of *Hibiscus sabdariffa* petals, a potential source of aluminium in the human diet.
Adéla Fraňková (Czech University of the Life Sciences, Prague, Czech Republic)

9.15 Discussion

9.20 Oral Poster 20
A pilot study measuring aluminium in bone in Alzheimer's and referent subjects;work in progress.
David Chettle (McMaster University, Hamilton, Canada)

9.25 Discussion

9.30 Platform 22
Absorption and metabolism of aluminium and its influence on gene expression to cause disease.
Shunsuke Meshitsuka (Totorri University School of Medicine, Yonago, Japan)

9.50 Discussion

10.00 **COFFEE**

10.20 Platform 23
Effect of aluminium on migratory and invasive properties of human breast cancer cells in culture.
Philippa Darbre (University of Reading, Reading, UK)

10.40 Discussion

10.50 Platform 24
Aluminium chloride transforms cultured mammary epithelial cells.
Stefano Mandriota (University Hospital of Geneva, Geneva, Switzerland)

11.10 Discussion

11.20 Platform 25
The relationship between aluminium, carbonyls and interleukins in the microenvironment of normal and cancerous breast tissue.
Ferdinando Mannello (University "Carlo Bo", Urbino, Italy)

11.40 Discussion

11.50 Oral Poster 21*
Physico-chemical characterisation of clinically-approved and research aluminium-based adjuvants.
Emma Shardlow (Keele University, Staffordshire, UK)

11.55 Discussion

12.00 Platform 26
Aluminium-hydroxide induced macrophagic myofasciitis (MMF); predictive scores and biomarkers.
François-Jérôme Authier (Paris Est-Creteil University, France)

12.20 Discussion

12.30 Platform 27
Death following human papillomavirus (HPV) vaccination; an auto-immune adjuvant-mediated adverse reaction?
Lucija Tomljenovic (University of British Columbia, Vancouver, Canada)

12.50 Discussion

13.00 **LUNCH**

Session 5

*Denotes presentation by a student.

Chair: ***Leon Kochian*** (USDA-ARS, Cornell University, New York, USA)

14.25 Introduction by the Chair

14.30 Platform 28
Caspase-3 short hairpin RNA interference targeted to an Alzheimer's disease animal model induced by aluminium blocks neural cell death and defects of learning and memory.
Qiao Niu (Shanxi Medical University, Taiyuan, China)

14.50 Discussion

15.00 Platform 29
Aluminium entry into the brain; studies in the cerebral vasculature and in human brain microvessel endothelial (hBMEC) cells.
Walter Lukiw (Louisiana State University Health Sciences Centre, New Orleans, USA)

15.20 Discussion

15.30 Oral Poster 22
Relationship of aluminium intoxication with neurodegenerative disease.
Alessandro Fulgenzi (University of the Studies of Milan, Milan, Italy)

15.35 Discussion

15.40 Platform 30
Colocalisation of aluminium and iron in cell nuclei in the brains of patients with Alzheimer's disease.
Sakae Yumoto (Yumoto Institute of Neurology, Tokyo, Japan)

16.00 Discussion

16.10 Platform 31
Aluminium, illicit drugs, neuropsychiatric impairment and disability; an evidence-based approach.
Paolo Prolo (Swiss Disability Insurance, Bellinzona, Switzerland

16.30 Discussion

16.40 **TEA**

Final Session Chair: *Chris Exley* (Keele University, UK)

17.10 Introduction by the chair to the JD Birchall Memorial Lecture

17.20 The JD Birchall Memorial Lecture

From the coordination chemistry to the biological chemistry of aluminium

Professor Tamas Kiss

University of Szeged, Szeged, Hungary

18.20 Discussion

18.30 **CONCLUSION OF MEETING**

20.00 Conference Dinner

List of Additional Posters

*Denotes presentation by a student.

Session 1

Session 2

Poster 1. **Labile Al content or BC/Al ratio in soil: what controls tree seedlings growth?**
Lubos Boruvka (Czech University of Life Sciences, Prague, Czech Republic)

Poster 2. **The influence of altitude on Al speciation in samples originating from beach and spruce forests.**
Lubos Boruvka (Czech University of Life Sciences, Prague, Czech Republic)

Poster 3. **Salicylic acid is involved in the mechanism of response to aluminum toxicity in cell suspensions of *Capsicum chinense Jacq.***
Armando Munoz-Sanchez (CICY, Merida, Mexico)

Poster 4.* **The combined effect of Aluminium and tritium on the plant cell membrane bioelectrical parameters.**
Olga Sevriukova (Vilnius University, Vilnius, Lithuania)

Poster 5. **Physiological and oxidative stress responses to aluminium in three oat genotypes grown hydroponically.**
Vera Morsch (Federal University of Santa Maria, Brazil).

Poster 6.* **Localisation of callose in rice tissue using aniline blue staining and immunofluorescence.**
Ian Stokes (Keele University, United Kingdom)

Session 3

Poster **1.*** **Aluminium effect on *Escherichia coli* growth and death**
Madine Artykbayeva (University of Aveiro, Aveiro, Portugal)

Poster **2.*** **Effects of aluminium maltolate ingestion on the immune response of SD neonates.**
Hsin-Ya Lin (Fu-Jen Catholic University,Taipei, Taiwan)

Poster **3.*** **Heme oxygenase-1 induction by ROS-JNK pathway plays a role in aluminium-induced anemia.**
Chia-Yeh Lin (Fu-Jen Catholic University,Taipei, Taiwan)

Poster **4.*** **Transcellular transport of alumina nanoparticles: A study on blood-brain barrier model in *vitro*.**
Hui-ting Peng (Shanxi Medical University, Taiyuan, China)

Poster **5.*** **Effects on long-term potentiation and the expression of AMPA receptor subunits in rat exposed to aluminum *in vivo*.**
Jing Song (Shanxi Medical University, Taiyuan, China)

Session 4

Poster **1.*** **1*In vivo* neutron activation analysis of aluminium in bone: further refinements.**
Hedi Mohseni (McMaster University, Hamilton, Canada)

Poster 2. **Modelling absorption efficiency of elements via oral exposure in humans.**
Yen Le (Radboud University, Nijmegen, The Netherlands

Poster 3.* **Antiperspirants, aluminium salts and relationship with breast cancer.**
Caroline Linhart (Innsbruck Medical University, Austria)

Poster 4. **Selective elevation of circulating CCL2/MCP1 levels in patients with longstanding post-vaccinal macrophagic myofasciitis and ASIA.**
Romain Gherardi (University of Paris Est, Creteil, France)

Poster 5 **Tyrosine as a depot adjuvant for use in allergy-specific immunotherapy.**
Simon Hewings (Allergy Therapeutics, Worthing, UK)

Poster 6 **Aluminium adjuvants potentiate the immune response via interaction with dendritic cells – but where does the aluminium go?**
Matthew Mold (Keele University, United Kingdom)

Session 5

Poster 1.* **Cognitive disorders and tau-protein expression among retired smelting workers exposed to aluminium.**
Xiao-ting Lu (Shanxi Medical University, Taiyuan, China)

Poster 2.* **Spectrometric methods to analyse and quantify the silicon content of mineral waters.**
Krista Jones (Keele University, United Kingdom)