

Magnesium 2018

September 13–15, 2018

Warsaw, Poland

**XVII International Conference of the Polish Society of
Magnesium Science of the name of Professor Julian
Aleksandrowicz**

2nd Polish–German Symposium

**Role of magnesium and other bioelements
in various areas of life and science**

The conference is organized under the auspices of the Biological and Chemical
Research Centre, University of Warsaw

Scientific Program

THURSDAY, SEPTEMBER 13, 2018

- 14:00–17:00 **Registration and Welcome Coffee**
- 15:00–15:45 **Opening Ceremony**
- 15:45–16:30 ***The Role of Magnesium in Muscle Function***
FEDERICA I. WOLF
*Institute of General Pathology, Fondazione Policlinico
Universitario "Agostino Gemelli" IRCCS, Università Cattolica
del Sacro Cuore, Rome, Italy*
- 16:30–17:15 ***Modern Analytical Methods for the Investigation of
Bioelements in Biological Objects – Advantages and
Limitations***
EWA BULSKA, ANNA KONOPKA, ELIZA KUREK,
MAGDALENA MICHALSKA-KACYMIROW,
ANNA RUSZCZYŃSKA
*Faculty of Chemistry, Biological and Chemical Research Center,
University of Warsaw, Warsaw, Poland*
- 17:15–18:00 **Meetings of Societies of Magnesium Research**
- 17:30–19:00 **Poster Session**
- 19:00–21:00 **Conference Dinner**

FRIDAY, SEPTEMBER 14, 2018

09:30–10:00 **Registration and Welcome Coffee**

SESSION 1 Bioelements in Medical Science I

Chairman: Federica Wolf, Andrzej Mazur

10:00–10:30 ***Coping of Stress with Magnesium***

HANS-GEORG CLASSEN, KLAUS KISTERS

*University of Hohenheim, Stuttgart, Germany, and
St. Anna Hospital, Herne, Ruhr-University, Bochum, Germany*

10:30–11:00 ***TRPM7 at the Crossroad of Cellular Magnesium and Calcium Signaling***

SAYURI SUZUKI, MALIKA FAOUZI, REINHOLD PENNER,
ANDREA FLEIG

*Center for Biomedical Research at The Queen's Medical
Center, and University of Hawaii Cancer Center and John A.
Burns School of Medicine, Honolulu, Hawaii, USA*

11:00–11:20 ***The Role of Magnesium in the Pathogenesis of Alzheimer Disease***

MARTA GOSCHORSKA, IRENA BARANOWSKA-BOSIACKA,
IZABELA GUTOWSKA, EMILIA METRYKA, DARIUSZ CHLUBEK

*Department of Biochemistry and Medical Chemistry, and
Department of Biochemistry and Human Nutrition,
Pomeranian Medical University, Szczecin, Poland*

11:20–11:40 ***Are there Anamnestic Risk Factors for Magnesium Deficiency in Pregnancy?***

WOLF KIRSCHNER, JOACHIM W. DUDENHAUSEN

*FBE Forschung Beratung Evaluation GmbH, Charité, and Klinik
für Geburtshilfe, Charité, Berlin, Germany*

11:40-12:10 **Coffee Break**

SESSION 2 Bioelements in Food and Agriculture I

Chairman: Witold Grzebisz, Jadwiga Wierzbowska

- 12:10-12:40 ***Technologies of Producing Magnesium-Containing Drinking Water***
VIACHESLAV BEREZUTSKYI, NATALIIA BEREZUTSKA,
VICTORYA KHALIL
*National Technical University of «KhPI», Kharkov, Ukraine,
National University of Radio Electronics, Kharkov, Ukraine,
and National University of Urban Economy in Kharkov name of
O. M. Beketov, Kharkov, Ukraine*
- 12:40-13:10 ***Chromium Redox Speciation in Food Samples***
KRYSTYNA PYRZYŃSKA
*Department of Chemistry, University of Warsaw, Warsaw,
Poland*
- 13:10-13:30 ***Magnesium – a Critical Component in Agricultural
Production in Poland***
PRZEMYSŁAW BARŁÓG, WITOLD GRZEBISZ,
KATARZYNA PRZYGOCKA-CYNA
*Department of Agricultural Chemistry and Environmental
Biogeochemistry, Poznan University of Life Sciences, Poznań,
Poland*
- 13:30-13:50 ***Changes of Magnesium Content and Activity of Nitrogenase
in Cultivation of Alfalfa Fertilized NPKFeMo***
BARBARA SYMANOWICZ, WOJCIECH SKORUPKA,
STANISŁAW KALEMBASA, KORNELIUSZ SKWAREK
*Faculty of Natural Science, Siedlce University of Natural
Sciences and Humanities, Siedlce, Poland, and
JARS Sp. z o.o., Legionowo, Poland*
- 14:00-15:00 **Lunch**
- 15:00-16:30 **Excursion**
- 19.00-23.00 **Banquet**

SATURDAY, SEPTEMBER 15, 2018

09:30–10:00 **Welcome Coffee**

SESSION 3 Bioelements in Medical Science II

Chairman: Hans-Georg Classen, Andrzej Lewenstam

10:00–10:30 ***Magnesium in Hypertension***
KLAUS KISTERS, BERNHARD GREMMLER, TANJA WERNER,
UWE GRÖBER
*Medical Clinic I, St. Anna Hospital & ESH Excellence Center,
Herne, Germany, and Inst. f. Micronutrients, Essen, Germany*

10:30–10:50 ***Magnesium Status Evaluation: the Present and the
Perspectives***
ANDRZEJ MAZUR, EDMOND ROCK
*Unité de Nutrition Humaine, Inra, Université Clermont
Auvergne, Clermont-Ferrand, France*

10:50–11:10 ***The Effect of Acute Lower Limbs Ischemia on the Oxidative
Stress Biomarkers and Blood Plasma Magnesium and
Calcium Concentration***
MARIA ISKRA, MAGDALENA SNOCH-ZIÓŁKIEWICZ,
WACŁAW MAJEWSKI
*Department of General Chemistry, Chair of Chemistry and
Clinical Biochemistry, and Department of General and
Vascular Surgery, Poznan University of Medical Sciences,
Poznań, Poland*

11:10-11:40 **Coffee Break**

SESSION 4 Bioelements in Analytical Chemistry I

Chairman: Ewa Bulska, Klaus Kisters

11:40-12:10 ***Mg²⁺ Complexes with Bioligands. Analytical and Biomimetic Approach***

ANDRZEJ LEWENSTAM

*AGH University of Science and Technology, Cracow, Poland,
and Johan Gadolin Process Chemistry Centre, c/o Centre for
Process Analytical Chemistry and Sensor Technology
(ProSens), Åbo Akademi University, Åbo-Turku, Finland*

12:10-12:40 ***Ionized and Total Magnesium Concentration Measurements
in Biological Samples***

MAGDALENA MAJ-ŻURAWSKA, ADRIANA PALIŃSKA-SAADY,
ANNA SUSKA

*Faculty of Chemistry, Biological and Chemical Research
Centre, University of Warsaw, Warsaw, Poland*

12:40-13:00 ***Identification and Quantification of Selenium Compounds
in Biological Samples by Mass Spectrometry***

ANNA KONOPKA, JULIO CESAR TORRES ELGUERA,

ANNA RUSZCZYŃSKA, ANDRZEJ GAWOR, EWA BULSKA

*Faculty of Chemistry, Biological and Chemical Research
Centre, University of Warsaw, Warsaw, Poland*

13:00–13:30 **Closing Ceremony**

13:30-14:30 **Lunch**

Poster Session

1. ***Magnesium Concentration Trends in Potato Tubers during the Growing Season***
WITOLD GRZEBISZ, MARIA BIBER, KATARZYNA PRZYGOCKA-CYNA
Poznan University of Life Sciences, Poznań, Poland

2. ***Effect of Soil Amendments on Content of Macroelements in Grain of Oat on Soil Contaminated with Cobalt***
MILENA KOSIOREK, MIROSŁAW WYSZKOWSKI
Department of Environmental Chemistry, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland

3. ***Sodium and Chlorine Content in the Main and By-Product Yield of the Spring Forms of Rape and Wheat Depending on the Fertilization with Sulfur, Magnesium and Differentiated Ratio of N:P:K***
MARZENA S. BRODOWSKA, MAGDALENA KURZYNA-SZKLAREK
Department of Agricultural and Environmental Chemistry, University of Life Sciences in Lublin, Lublin, Poland

4. ***The Effect of Meat and Bone Meal and Nitrogen Fertilizer on the Macronutrient Content of Maize Grown for Silage***
ANNA NOGALSKA, MAJA FIJAŁKOWSKA, SŁAWOMIR J. KRZEBIETKE,
ALEKSANDRA ZAŁUSZNIEWSKA
Department of Agricultural Chemistry and Environmental Protection, and Department of Animal Nutrition and Feed Science, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland

5. ***Evaluation of the Influence of Sulfur and Magnesium Fertilization at a Different Ratio of N:P:K on the Content of Copper and Zinc in the Grain and Straw of Spring Forms of Rape and Wheat***
MARZENA S. BRODOWSKA, MAGDALENA KURZYNA-SZKLAREK
Department of Agricultural and Environmental Chemistry University of Life Sciences in Lublin, Lublin, Poland

6. ***Concentrations of Minerals in Selected Species of Edible Mushrooms***
MAŁGORZATA STRYJECKA, EWA STAMIROWSKA-KRZACZEK
Institute of Agricultural Sciences, State School of Higher Education in Chełm, Chełm, Poland

7. ***Yield and Mineral Composition of Jerusalem Artichoke Tubers (*Helianthus Tuberosus* L.) Depending on the Dose of Nitrogen***
JADWIGA WIERZBOWSKA, BOŻENA CWALINA-AMBROZIAK, BOŻENA BOGUĆKA
*Department of Agricultural Chemistry and Environmental Protection
Department of Entomology, Phytopathology and Molecular Diagnostics,
and Department of Agrotechnology, Crop Management and Agribusiness,
University of Warmia and Mazury in Olsztyn, Olsztyn, Poland*

8. ***Content of Mineral Elements in the Milk of Local Breeds of Cows***
MONIKA KĘDZIERSKA-MATYSEK, ANNA WOLANCIUK, JOLANTA KRÓL,
ANETA BRODZIAK, JOANNA BARŁOWSKA, ZYGMUNT LITWIŃCZUK
*Department of Commodity Science and Processing of Animal Raw Materials, and
Laboratory for Organic Production of Food of Animal Origin, Institute of Animal
Breeding and Biodiversity Conservation,
and Sub-Department of Cattle Breeding and Genetic Resources Conservation,
Institute of Animal Breeding and Biodiversity Conservation,
University of Life Sciences in Lublin, Lublin, Poland*

9. ***Investigation of Selenium Speciation in Animal Tissues Using Mass Spectrometry Methods***
ANDRZEJ GAWOR, ANNA RUSZCZYŃSKA, ANNA KONOPKA,
MARIAN CZAUDERNA, EWA BULSKA
*Faculty of Chemistry, Biological and Chemical Research Centre, University of
Warsaw, Warsaw, Poland,
and Polish Academy of Sciences, The Kielanowski Institute of Animal Physiology
and Nutrition, Jabłonna, Poland*

10. ***Mass Spectrometry for Elemental Analysis of Atherosclerotic Plaque***
AGATA JAGIELSKA, BARBARA WAGNER, ANNA RUSZCZYŃSKA, ANDRZEJ GAWOR,
EWA BULSKA, ELŻBIETA ZIEMIŃSKA, BEATA TOCZYŁOWSKA,
WAWRZYNIEC JAKUCZUN, MAŁGORZATA SZOSTEK
*Faculty of Chemistry, Biological and Chemical Research Centre, University of
Warsaw, Warsaw, Poland
and Mossakowski Medical Research Centre, Polish Academy of Sciences,
Warsaw, Poland, and
Department of General and Endocrine Surgery, Medical University of Warsaw,
Warsaw, Poland*

11. ***Investigation of Selenium-Containing Proteins in a Selenium-Enriched Plant by Using SDS-PAGE-LA-ICP-MS***
CUC THI NGUYEN-MARCIŃCZYK, EWA BULSKA, ELIZA KUREK,
MAGDALENA MICHALSKA-KACYMIROW
Faculty of Chemistry, Biological and Chemical Research Centre, University of Warsaw, Warsaw, Poland

12. ***Effects of Exhaustive Swimming on Body Magnesium Redistribution***
SEI-JIN LEE, SHANG-JIN KIM
Korea Basic Science Institute Jeonju Center, Jeonju, Republic of Korea
College of Veterinary Medicine, Korea Zoonoses Research Institute and Bio-Safety Research Institute, Chonbuk National University, Iksan, Republic of Korea

13. ***Therapeutic Mild Hypothermia-Induced Mg²⁺ Homeostasis in Heart***
SEI-JIN LEE, SHANG-JIN KIM
Korea Basic Science Institute Jeonju Center, Jeonju, Republic of Korea
College of Veterinary Medicine, Korea Zoonoses Research Institute and Bio-Safety Research Institute, Chonbuk National University, Iksan, Republic of Korea