ASSOCIATION OF CHEMISTRY AND THE ENVIRONMENT

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Book Of Abstract

WELCOME

On the behalf of the organizing committee, it is my great pleasure to welcome you to Lodz in Poland for the **20th European Meeting on Environmental Chemistry** (**EMEC20**)

The conference is organized by the Faculty of Chemistry from the Lodz University of Technology (TUL), on behalf of the Association of Chemistry and the Environment (ACE). The **EMEC20** conference is organized under honorary auspices of the Mayor of the City of Lodz and His Magnificence Rector of the Lodz University of Technology.

The **EMEC** conference covers a broad range of topics within the field of environmental chemistry, and interdisciplinary presentations are very welcome. The meetings always attract high quality science presentations and invited talks from internationally renowned researchers working in environmental chemistry and related fields.

The main objectives of **EMEC20** are to bring together scientists working in the fields of environmental chemistry & environmental monitoring, to report the most advanced research progresses in these areas and to pave the way for the future collaboration, research and challenges.

We think that **EMEC20** will be an useful occasion to enjoy science, network and meet old friends or new colleagues, to get new ideas for your scientific work, to establish new cooperation, start new projects in Lodz - the city of unique and amazing history and culture.

I wish you very pleasant moments together and I hope this will be a fruitful and successful scientific event.

Prof. Małgorzata Iwona Szynkowska
Chair of the EMEC20

Distribution of saturated hydrocarbons in unweathered and erosional landforms 1P20

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Badlands are worldwide erosional landforms. The formation of different badland morphologies is due to the type of sedimentary bedrock, especially texture and cementation degree, as well as climate.

In this study badlandes mudstones which have high silt and clay contents from different locations in Italy, Spain and Canada (Figure 1) were investigated from organic-geochemical point of view. It is known that vegetation is commonly identified as a significant controlling mechanism of land degradation in sensitive, semi-arid environments [1].

Fig. 1. Sestino badlandes, Italy.

Total of 18 samples were analysed from 9 different locations. From each location unweathered mudstone and crust were taken. Qualitative and semi-quantitative composition of the mineral part of samples was determined using X-ray diffractometer. Additionally, chemical properties such as pH, EC, Eh, SAR are determined. The content of organic carbon (Corg), was determined by elemental analysis after removal of carbonates with diluted hydrochloric acid (1:3, v/v). Soluble organic matter, bitumen, was extracted from sediments using the Soxhlet extraction with an azeotrope mixture of dichloromethan and methanol (88:12, volume %). Isolation of the saturated and aromatic fraction was done using column chromatography. Organic compound were analyzed by gas chromatography-mass spectrometry (GC-MS) technique in the fractions of saturated hydrocarbons.

Many study has shown that clay mineralogy is extremely important for the behaviour of different materials undergone weathering/erosional processes as well as smectite-containing sediments have been shown to be more erodable [2]. Additonally, the presence of enough amount of organic matter, iron and aluminum oxides causes to make marls durable while, sodium ions cause more erosion associated with dispersed clay particles [3].

In this study, it was observed that major changes in the distribution of saturated hydrocarbons occurred in samples containing smectite compared to those samples where mentioned mineral was not identified. This confirms that the presence of smectite is crucial factor for changes inorganic and organic matter during erosional processes.

Mentioned changes in distribution of saturated hydrocarbons are most pronounced for *n*-alkanes, whereby higher odd-numbered *n*-alkanes are most sensitive during erosive processes. For that reason parameters which reflect the ratio of higher and lower *n*-alkanes (for example, TAR, TAR/MAR, CPI) decrease in eroded samples compared to unweathered mudstones.

Significant changes in distribution of polycyclic alkanes of sterane and terpane types were not observed.

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References

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