

University of Ss. Cyril and Methodius in Trnava

Faculty of Natural Sciences

The 9th International Scientific Conference
Applied Natural Sciences 2025



ANS 2025

Book of abstracts

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17th – 19th of September 2025
Štrbské Pleso, Slovakia

University of Ss. Cyril and Methodius in Trnava

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1. Applied Informatics
2. Biology and Biotechnology
3. Environmental Sciences
4. Chemistry
5. Young Scientists

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FOREWORD

Dear Colleagues, Dear Guests,

It is my great pleasure to welcome you to the **9th International Scientific Conference *Applied Natural Sciences* 2025**. Over the past years, this conference has become an important forum for scientists, researchers, and students to exchange ideas, present new findings, and strengthen collaborations across disciplines.

This year, we are honored to host participants from many countries, whose contributions span a wide range of fields – from biology and biotechnology to chemistry, environmental sciences, and informatics. The diversity and quality of the submitted abstracts reflect not only the progress made in applied natural sciences, but also the enthusiasm and dedication of the scientific community to address current and future challenges.

I would like to extend my sincere thanks to all authors for their contributions, to the keynote speakers for sharing their expertise and vision, and to the Organising Committee for their tireless work in making this event possible. My gratitude also goes to our partners and supporters, without whom this conference would not be possible.

I believe that the *Book of Abstracts* you now hold in your hands will serve not only as a record of the scientific discussions held here in **Štrbské Pleso**, but also as an inspiration for future research and cooperation.

I wish you a fruitful conference, stimulating discussions, and many enjoyable moments during your stay in the High Tatras.

With best regards,

Assoc. Prof. Iveta Dirgová Luptáková, PhD.
Dean
Faculty of Natural Sciences
University of Ss. Cyril and Methodius in Trnava

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Young Scientists

7,000 years of environmental change in the Eastern Carpathians: A palynological record from Lake Vinderel

Silvia Bartóková^{*}, Barbora Kiapešová, Katarína Trnková

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Abstract: Lake Vinderel, located in the high-altitude Maramureş Mountains of the Romanian Carpathians, provides a valuable archive of paleoecological and climatic changes. This study aimed to reconstruct the lake's paleoecological history over the past ~7,000 years and to identify the onset and development of anthropogenic influence in the surrounding landscape. A sediment core was extracted using a Uwitec Piston Corer, and palynological analysis was performed on 66 samples (0.5 cm³ each) using standard acetolysis and light microscopy at 400× magnification. The resulting pollen diagram includes 53 identified taxa and reveals several key phases in vegetation dynamics. In the earliest period, the region was dominated by forest vegetation composed mainly of *Pinus*, *Abies*, *Betula*, and *Corylus*, indicating stable mid-Holocene climatic conditions. A continuous and abundant presence of *Alnus* and grass taxa (*Gramineae*) suggests a wetter phase, potentially marking the onset of human influence. In later stages, a significant increase in non-arboreal taxa such as *Gramineae*, *Artemisia*, and *Aster*-type points to intensified anthropogenic impact, including deforestation and land-use changes. This study enhances understanding of long-term interactions between climate, vegetation, and human activity in the Carpathians and enriches the palynological record of rare and ecologically sensitive mountain taxa.

Keywords: paleoecology, palynology, anthropogenic influence, vegetation dynamics, Carpathians



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Martin Valica

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