



# The Soil Re-Union Science for Healthy Soils

4th International and  
16th National Congress  
of the Serbian Society  
of Soil Science



Serbian  
Society of  
Soil Science



# THE BOOK OF ABSTRACTS

Vrdnik, Fruške Terme, Serbia,  
20-23. October 2025

Congress Organizer: Serbian Society of Soil Science  
Co-organization: Institute of Field and Vegetable Crops,  
National Institute of the Republic of Serbia

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## **ECOFUNCTIONALITY OF SOIL ORGANIC MATTER: A NEW PARADIGM FOR SOIL SUSTAINABILITY**

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### **ABSTRACT**

Soil organic matter (SOM) plays a key role in maintaining soil productivity through its positive impact on physical, chemical, and biological soil processes. It supports vital ecosystem functions such as carbon sequestration, nutrient provision, and biodiversity. Despite its importance, current research on SOM tends to emphasize its chemical properties, often overlooking its broader ecological functions.

As global soils face mounting pressures and declining productivity, a paradigm shift is needed – one that redefines the conservation, management, and use of SOM in terms of its ecofunctionality. This concept encompasses the relationship between the characteristics of organic inputs and the specific ecosystem functions they sustain.

To move in this direction, we must first define the key traits of organic amendments that promote desired outcomes such as enhanced carbon storage, improved nutrient cycling, or disease suppression. Equally important is identifying which ecological functions require targeted improvement. In this context, SOM should not only be evaluated for its contribution to soil fertility, but also as a proxy for the health and resilience of the soil ecosystem—providing habitat, supporting biodiversity, enabling biogeochemical cycles, and contributing to soil formation and primary productivity.

In conclusion, ensuring long-term soil sustainability demands a shift in focus from chemical composition toward ecological function. Only by understanding and preserving soil ecofunctions can we truly safeguard this vital resource.

**Key words:** soil organic matter, ecofunctionality, ecosystem preservation

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