



**3rd Global Soil Biodiversity Conference
2023
Book of Abstracts**

Diversity of true truffles (*Tuber spp.*) in European biodiversity hotspots, the role in soil bioremediation

Zaklina Marjanovic¹, Sergi Garcia Barreda², Sergio Sánchez Durán², Eva Tejedor Calvo², Eva Gómez³, Mara Rondolini⁴, Nicola Baldoni⁴, Leonardo Baciarelli Falini⁴, Gilberto Bragato⁵, Domizia Donnini⁴

¹University Of Belgrade, Institute For Multidisciplinary Research, Belgrade, Serbia, ²Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA), Av. de Montañana, 930, 50059 Zaragoza, Spain, ³Centro de Investigación y Experimentación en Truficultura (CIET), Diputación Provincial de Huesca, Polígono Fabardo s/n, 22430, Graus, Spain, ⁴University of Perugia, Department of Agricultural, Food and Environmental Sciences, Borgo XX Giugno, 74, 06121 – Perugia, Italy, ⁵Council for Agricultural Research and Economics, Research Centre on Viticulture and Enology, 34170 Gorizia, Italy

Aim: Truffles (*Tuber spp*) are the ectomycorrhizal fungi that produce highly valuable fruitbodies and are the only obligatory fungal symbionts that are successfully produced in man-made plantations. Few European species can be grown using special agroforestry practices that are also enabling the development of functional forest soils/ ecosystems. For these reasons, truffles have attracted the attention of the scientific consortium within the H2020-MSCA-RISE project INTACT, which is aimed at evaluating their diversity, natural habitats, plantation possibilities, novel production techniques, protection and policies in different countries.

Method: We analyze the state of the art of truffle diversity in three European biodiversity hot spots (Spain, Italy, and Serbia) as connected to different ecological characteristics. We explore possibilities for establishing truffle plantations in these regions as the rare exemplar of sustainable remediation of forest soils and ecosystems. We present a new tool for studying truffles and their habitats – Edaphobase, a database of soil biodiversity (<https://portal.edaphobase.org/>) that has been upgraded to be able to host also fungal taxa and connect them to other soil communities and common environmental traits.

Results: The significant diversity rates confirm the ecological suitability for different truffle production in three European regions. COST Action 18237 outcomes enabled, for the first time, the connection of specific fungal and soil mesofauna communities and their environments.

Conclusions: Managing techniques must be applied to natural truffle habitats in order to preserve truffle production and supportive soil biodiversity. Edaphobase tools will enable monitoring of soil biodiversity/environments not only in changing natural habitats (forests) but also in truffle plantations (agroforests).