



**EVALUATING THE EFFECTS OF FORESTRY TREATMENTS ON
ECTOMYCORRHIZAL FUNGAL COMMUNITIES IN A PANNONIAN
OAK-HORNBEAM FOREST**

Különböző erdészeti üzemmódok hatása az ektomikorrízás gombaközösségek diverzitására és összetételére

**József Geml^{1*}, Adrienn Geiger¹, Anna Molnár¹, Leal Carla Mota¹, Flóra Tinya²
Bence Kovács², Réka Aszalós² & Péter Ódor²**

¹ELKH-EKKE Lendület Environmental Microbiome Research Group, Eszterházy Károly Catholic University, Eger, Hungary; ²Institute of Ecology and Botany, Centre for Ecological Research, Vácrátót, Hungary; *E-mail: geml.jozsef@uni-eszterhazy.hu

Ectomycorrhizal (EM) fungi are one of the most ecologically and culturally important fungi in temperate forest ecosystems, as root contacts with EM fungi are essential for the survival of most forest tree species. The Pilis Forestry Systems Experiment, ongoing since 2016, compares five different forest management methods (four treatments and control) in terms of their effects on abiotic environmental variables, vegetation and mesofauna. The project presented here provides the first insight in our country on the impact of forest management on the composition of EM fungal communities based on DNA data from soil. A total of 4480 fungal genotype DNA sequences were determined in 30 plots sampled in October 2020, more than half of which could be identified at the genus level or higher. Of these, EM fungi were represented by 534 genotypes from 38 genera. Silvicultural practices affected both diversity and composition of fungal communities. Diversity of EM fungi was reduced in the clear-cut and 20 m gap treatments compared to the control. Within EM fungi, there were also significant differences in habitat preferences of individual genera. For example, *Amanita* species were most abundant in the control, whereas *Laccaria* species were most abundant in the more heavily disturbed plots. Significant compositional differences were found between treatments, with clear-cut and gap plots being separated from the other treatments. Of the measured environmental variables, understorey cover and species richness, as well as soil moisture, correlated most strongly with changes in fungal community composition. A thorough understanding of the environmental factors that influence forest microbiome dynamics is essential for the sustainable management of Pannonian forests so that they continue to provide us with ecosystem functions and services that are key to sustainable development.