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ECTOMYCORRHIZAL FUNGI IN A PANNONIAN SANDY FOREST STEPPE LANDSCAPE: A COMPARISON OF OPEN AND CLOSED GRASSLANDS AND POPLAR WOODLANDS

Ektomikorrhiza gombaközösségek kiskunsági homoki nyílt és zárt gyepekben és nyárfaerdőkben

József Geml

ELKH-EKKE Lendület Environmental Microbiome Research Group, Eszterházy Károly Catholic University, Eger, Hungary; Research and Development Centre, Eszterházy Károly Catholic University, Eger, Hungary; E-mail: geml.jozsef@uni-eszterhazy.hu

Ectomycorrhizal (EM) fungi are among the most diverse and dominant fungal groups in temperate ecosystems. In Pannonian biogeographic region, they are most diverse and abundant in forest ecosystems. Nonetheless, they constitute an ecologically important and little-studied group of organisms in steppe ecosystems with woody plants, where they likely play crucial roles in the water and nutrient supply of their hosts. The forest steppe vegetation in central Hungary is a mosaic of open grassland communities on sand dunes, closed interdune grasslands, and open woodlands. The primary EM hosts are sprawling needle sunrose (*Fumana procumbens*), rosemary-leaved willow (*Salix rosmarinifolia*), and white poplar (*Populus alba*), respectively. The topic of this presentation is a pilot study to assess the diversity and community composition of EM fungi in the above habitats in a well-preserved steppe in the Kiskunság National Park in central Hungary, based on DNA metabarcoding of fungi from soil samples. The data show that EM fungi associated with *Fumana* on open sand dunes include genera *Deastria*, *Geopora*, *Inocybe*, while *Cenococcum*, *Cortinarius*, *Geopora*, *Hebeloma*, *Inocybe*, *Sebacina*, *Tomentella*, and *Tuber* species dominate EM fungal communities in soils around *S. rosmarinifolia* and *P. alba*. Species richness of EM fungi is greatest under interdune willows and in white poplar woodlands, while EM fungal communities in the sandy soil around *Fumana* typically have less species. Several EM fungal genera showed significant differences in richness, read abundance, and composition among habitats, likely driven by environmental factors and possibly by host preference. Despite shared fungal genera and similar diversity, the composition of willow- and poplar-associated EM fungal communities differed substantially at species level. Overall, our pilot study shows that EM fungi are moderately diverse in the sand forest steppes of central Hungary and occupy niches along a moisture gradient ranging from the subarid sand dunes to the more mesic interdune grasslands. Further studies are undoubtedly needed for a more thorough characterization of EM fungal communities in Pannonian forest steppes.

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