

Ectomycorrhizae (ECM) can differ tremendously in their construction, particularly regarding amount, organisation, and range of their extramatrical mycelium that extends into the soil. Based on its features we have been able to distinguish so-called exploration types (ET) that indicate the different capabilities of ECM to occupy and explore the soil. Smooth ECM without visible emanating hyphae, and contacting the soil almost exclusively by their mantle surface, are regarded as belonging to the Contact ET; if they possess a remarkable hyphal envelope of solitary hyphae they are assigned to the Short Distance ET. Many ECM form extended rhizomorphs in addition to emanating hyphae and grow to a wider range into the soil; they are designated as Medium Distance ET. This ET has been further divided into three subgroups with respect to the shape of the rhizomorph margin and the relation to water: the fringe (Mdf-ET), mat (MDm-ET), and smooth (MDs-ET) subtype (AGERER 2001, 2007). Long Distance ET ECM possesses only few rhizomorphs, but they bridge a wide distance within the soil, often more than half a meter. They are internally highly differentiated (AGERER and RAMBOLD 2004–2011) to facilitate transport. Not uncommonly, different ETs are naturally associated (AGERER et al. 2012). Whereas C-ETs, SD-ETs, and MDs-ETs ECM are almost exclusively hydrophilic, Mdf-ETs, MDm-ETs, and LD-ETs ECM are hydrophobic. The ECM mycelia and their ET-dependent density, range and potential space occupation and space exploitation can be quantified and compared. The extramatrical mycelium is functionally connected to soil exploitation through uptake and transport of water and nutrients, the basics needed for tree growth. With a few examples, focusing on natural ECM communities with their in-situ distribution and abundance, the importance of the space area occupied by ECM is shown. The putative explorative and exploitative function is discussed with respect to organic nitrogen, ammonium, nitrate and phosphate.

Irodalomjegyzék / References

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A JANUS-ARCÚ KANNAPENÉSZ

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A mikroszkopikus fonalas gombák közé tartozó *Aspergillus* fajok emberegészségügyi, mezőgazdasági és biotechnológiai szempontból egyaránt kiemelkedő jelentőséggel bírnak. Számos *Aspergillus* faj opportunista patogén főleg legyengült szervezetekben, más fajok növénypatogének, illetve mezőgazdasági termékeket szennyezhetnek különféle mikotoxinokkal (aflatoxinok, fumonizinek, ochratoxinok, patulin). Ugyanakkor a nemzetség számos tagját alkalmazzák élelmiszer-fermentációkban, illetve a biotechnológiai és gyógyszeriparban különböző szerves savak, enzimek, valamint gyógyszeralapanyagok (pl. lovastatin) előállítására, illetve különböző gének heterológ expressziójára. Az előadás keretében a nemzetség taxonómiáját érintő újabb eredményeket tárgyaljuk, emellett kitérünk a klinikumban jelentős *Aspergillus* fajokra, továbbá a mezőgazdaságban kockázatot jelentő növénypatogén és mikotoxin-termelő *Aspergillus* fajokra egyaránt.

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THE JANUS-FACED ASPERGILLI

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The *Aspergillus* genus belongs to filamentous ascomycetes, and is important from various aspects for humans, including human health, agriculture and biotechnology. Several *Aspergillus* species are important opportunistic human and animal pathogens, which cause various disease symptoms mainly in immunocompromised patients. Other *Aspergillus* species are plant pathogens, and may contaminate various agricultural products with mycotoxins (aflatoxins, fumonisins, ochratoxins, patulin) in the field or during storage. At the same time, most of them are frequently used in food fermentation processes, in the biotechnological and pharmaceutical industry for the production of various organic acids, industrial enzymes or pharmaceutical compounds (e.g. lovastatin), or as heterologous hosts for the expression of various genes. In the presentation, new developments regarding the taxonomy of aspergilli and the most important and emerging clinically relevant taxa will be discussed, and the importance of them in agriculture will also be covered.

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AZ ASPERGILLUS-OK STRESSZVÁLASZRENDSZERE

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