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FUNGAL NETWORKS – STRUCTURE, FUNCTION AND USE BY HUMANS

Summary

Fungi are mostly terrestrial organisms occurring in all climatic zones. Thanks to the growth mechanisms that are adaptable to environmental conditions, they form underground networks covering large areas. Within a network that grows in heterogenic environment, nutrients are allocated through a long-distance translocation. Translocation is of a key importance for mycelium survival, because hyphae growing in a nutrient-poor place are supported by hyphae from a nutrient-rich area. Fungi may also enter into interactions with other organisms. Using Myc factors, they activate plant gene complexes, which enables the development of mycelium and colonization of plant roots leading to the development of mycorrhiza. Mycorrhizal networks are used by plants to communicate and warn each other of a danger. In turn, humans use the characteristics of fungal networks, among others, to design the flow of communication systems, for myco-remediation and production of biodegradable packing materials. Assuming that about 1.5 mln of fungal species occur in the world, out of which only some 10% are known, we can only presume how many unusual properties of fungi remain still undiscovered.

Key words: fungal network, long-distance translocation, mycorrhiza