

Abstract

Interactions between fungi and plants can be found all around us. We would hardly find a plant neither containing a single hypha in its rhizosphere nor infested with a fungal pathogen. Whereas interactions of these organisms are well and described in terrestrial ecosystems, situation below the water level is completely different. The status of aquatic fungi and their relation to aquatic plants is to date not clear at all regarding difficulties of reaching them and huge value of terrestrial interactions, which occupy most of the experts.

All the basic plant-fungus interactions have been detected also underwater. As well as on the land, the most widespread aquatic mycorrhizal association is arbuscular mycorrhiza. On the contrary, the other well known mycorrhiza types such as orchid or ericoid mycorrhiza do not occur in the aquatic environment where their hosts are absent. On the other hand, endophytism is relatively frequent. Ascomycetous fungi with dark septate hyphae, collectively being referred to as “dark septate endophytes” (DSE), seem to be as abundant in the water as on the land. Additionally, aquatic plants are being challenged by numerous fungal parasites.

AMF may play an important role in nutrient uptake of some plants from the aquatic environment. However, many species of aquatic plants are able to receive water-dissolved nutrients with non-root parts of their bodies. Moreover, conditions in the floor deposits in many water reservoirs are unsuitable for fungal growth, especially account on lack of oxygen, though some kinds of plants including isoetids are able to oxygenate the floor deposits which makes it possible for fungi to grow there.

In spite of the fact that aquatic mycology is an independent field of science for over 60 years, our knowledge of its topic is still rather incomplete, although aquatic fungi and their hosts play key roles in the aquatic ecosystem functioning.

Key words:

arbuscular mycorrhiza, endophytic fungi, submerged plants, seagrasses, “sea meadows,” dark septate endophytes, isoetids