

DYNAMICS OF MYCORRHIZATION IN SOME PLANT SPECIES DURING PROGRESSIVE SUCCESSION ON SAND QUARRIES (LENINGRAD REGION)

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The aim of our research is to reveal the role of arbuscular mycorrhiza as a factor affecting the species vitality and coenotic status in plant communities at the different stages of natural progressive succession. Data collection was carried out on 2 sand quarries in the Leningrad Region. 4 stages of progressive succession were distinguished: pioneer, grassy, shrubby, and forest. 5 herbaceous mycotrophic plant species presented in communities of all stages were selected as the model ones (*Agrostis capillaris* L., *Artemisia vulgaris* L., *Chamaenerion angustifolium* (L.) Scop., *Deschampsia cespitosa* (L.) P. Beauv., *Tussilago farfara* L.). The coenotic status was determined on the Ipatov–Mirin's scale of dominance, the vitality was assessed on a five-point A. Grossheim's scale. When assessing mycorrhization, the frequency of arbuscular mycorrhiza occurrence, the intensity of mycorrhization, and the abundance of arbuscules and vesicles were calculated (Trouvelot et al., 1986; Mycorrhiza Manual, 2001; Yurkov et al., 2010; Yurkov, Semenov, 2019). A comparison of the coenotic role and vitality of grass species with the parameters of their root mycorrhization was carried out for the first time. The mycorrhization of the model species does not increase during progressive succession, and even decreases sometimes. The mycorrhization of each species most varies in pioneer communities. A weak tendency to an increase in mycorrhization indicators was observed in model species at the grassy stage, while the percentage cover of species and, in some cases, vitality in the communities increased. Common to all the species at the forest stage was a significant decrease in the mycorrhizal indices. The hypothesis that a high mycorrhization provides high vitality and the coenotic role of species was not confirmed by the obtained data. These parameters of model species showed positive correlation only in a few specific communities. The vitality and coenotic role of the studied species are influenced more strongly by the substrate richness and other environmental conditions.

Keywords: natural recovery of vegetation, progressive succession, arbuscular mycorrhiza, vegetation dynamics, disturbed habitats, vitality, symbiosis

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