

Abstract

Fire is a natural disturbance in many ecosystems. However, it is predicted to increase in frequency and severity due to climate change. This bachelor thesis provides an overview of the impact of fire on an ecologically important component of most terrestrial ecosystems: mycorrhizal fungi, specifically arbuscular mycorrhizal and ectomycorrhizal fungi. These fungi form symbioses with approximately 74 % of vascular plants. Since plant regeneration can be affected by a lack of mycorrhizal symbionts, it is important to understand the role of fire in the ecology of arbuscular and ectomycorrhizal fungi. This paper, in the form of a literature review, summarizes existing knowledge on the main effects of fire on mycorrhizal fungi. The impacts of fire on mycorrhizal communities vary depending on fire characteristics, as well as environmental and ecological conditions. Fire severity appears to be an important factor influencing the composition of mycorrhizal fungal communities. In particular, fires of high severity can have a strong negative effect on the diversity of mycorrhizal fungi. The differences between arbuscular mycorrhizal and ectomycorrhizal fungi in response to fire are primarily related to the length of recovery time of the communities after fire. According to the available literature, ectomycorrhizal fungal communities seem to experience significantly longer-lasting effects. Longer-lasting effects after more severe fires are also observed in the soil, which may be another factor shaping mycorrhizal fungal communities. Of the edaphic conditions affected by fire, soil pH appears to significantly influence the proportion of species in mycorrhizal communities through species-specific preferences. This work also touches on the topics of mycorrhizal pyrophilic fungi, resistant propagules, and resistant spores, although studies on these topics are still limited.

Key words

mycorrhizal symbiosis, arbuscular mycorrhizal fungi, ectomycorrhizal fungi, fire, climate change, edaphic conditions, pyrophilous fungi