Abstract

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Alien species of plants and biotic resistence of invaded communities

This study is about problems and questions of alien plants and their relation to native communities in their new range.

Ecologists are increasingly aware that soil organisms may affect plant communities because they are part of the processes that affect them.

The soil organisms may affect the success of alien species invasion.

Each species of plants differ in interaction with soil organisms, these interactions can result in specific feedback that will influence the future growth of other plants.

According to Darwin's naturalization hypothesis related species should have similar enemies.

This implies less successful invasion of alien plants at home with relatives.

The practical part consists of two experiments. Using plant-soil feedback I studied under controlled conditions the importance of kinship of native plants and their soil organisms on the growth of three species of alien plants *Impatiens, Parviflora, Stenactis annua and Epilobium ciliatum*.

There were used soil samples from localities with related and unrelated species; the soil was used as inoculums for growing first-generation plants, where there were original related, unrelated and alien plants.

In the second phase only alien species were grown. Part of the soil samples was sterilized in both experiments, in the second experiment also split into fractions with different soil biota.

Individual alien plants were stimulated both by themselves and native species that grow together with them on the sites.

I found no effect of relatedness of native species on the growth of alien species, thus failed to prove Darwin's naturalization hypothesis.

The results suggest that differences in invasion success at least in some species can be affected by species-specific interactions between soil biota and plant.

Keywords: biological invasions, alien plant species, invasive plant, biotic interactions, community resistance, plant - soil feedback