

ALLELOPATHIC ANALYSIS OF STEPPE SPECIES WITH DIFFERENT CENOTIC STRATEGIES

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Antropization of virgin steppe ecosystems made communities of indigenous vegetation lose their stability and became vulnerable to intrusion by aggressive invasive weeds. Even vegetation of steppe reserves undergoes transformation. So, it became urgent to restore cenotic positions of native steppe species. Plant cenotic positions in communities are determined by their cenotic strategy. The latter is preconditioned by plant morphological and physiological features, including allelopathic properties, as it was shown by the recent achievements of allelopathy.

The aim of our study was to analyze allelopathic properties of widespread steppe species with *K* (violents) and *S* (patients) types of strategies, and invasive weeds (*R*-strategists, explorers).

Plant material of 16 steppe species and weeds were collected from “Steppes of Ukraine” plot, National botanical garden (Kyiv) at different phenological phases from April to September 2003. Dynamics of allelopathic potential of these species, cultivated in pots at equal temperature, light and humidity conditions, during ontogenesis was studied in greenhouse experiment. Allelopathic activity of fresh plant material was immediately assessed in bioassays on cress root growth.

Allelopathic potential of plants collected from the field showed significant dependence on their phenological phase. The highest allelopathic potential plants with *K* and *S* types of strategies demonstrated during budding or flowering stage. The average seasonal allelopathic potential of *R*-strategists, as a rule, was higher than those of typical steppe species. While seasonal changes in allelopathic potential of *R*-strategists were noticeably lesser than those of *S*- and, especially, *K*-strategists.

These tendencies were also confirmed in the greenhouse experiment. The ontogenetic dynamics of allelopathic potential was characterized by peaks during seedling stage (period of active growth) and during development of generative organs. Allelopathic potential of *R*-strategists began to rise more quickly during first stages of development than that of *K*- and *S*-strategists, and only slightly reduced during further stages as opposite to *K*- and *S*-strategists.

It could be concluded that observed tendencies of allelopathic potential of *R*-species give them an advantage over indigenous steppe plants, and enable them not only to invade disturbed steppe communities, but also to hold them for a certain period of time delaying restoration of natural vegetation.