

COMPARISON OF AUTOTOXIC EFFECTS OF SOLIDAGO SPECIES

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Solidago canadensis L. and *S. gigantea* Aiton. are highly invasive species which widely spread in Europe and threaten local plant communities. Distribution of natural hybrid of *S. canadensis* and local species *S. virgaurea* L., known as *S. x niedereideri* Khek., also expands rapidly. One of reasons why invasive species are so successful is their allelopathic activity.

The aim of this work was to compare allelopathic effect of all *Solidago* species occurring in Lithuania on germination of *Solidago* seeds (autotoxicity). *Solidago canadensis* and *S. x niedereideri* were used as target species. The aqueous extracts of dried green leaves in six concentrations were used. Total percentage of germination, radicle and hypocotyl length of seedlings were measured and the response ratio to treatment was counted. A factorial ANOVA was used to analyze the effect of each factor. In case of significant interactions, a t-test was used to test differences between mean values of treatments.

The inhibitory effect of *Solidago* leaf extracts was target species specific. *S. canadensis* was much more sensible to *Solidago* leaf extracts than *S. x niedereideri* ($F=68.85$, $p < 0.001$). The inhibitory potential of all four tested *Solidago* species did not differ statistically ($F=1.40$, $p=0.251$). Therefore, stronger allelopathic effect in nature could be achieved only by higher biomass of invasive species.