

## **Allelopathic activity analysis of the invasive grassland species *Elaeagnus angustifolia* L. by the method of Neubauer & Schneider**

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Russian olive (*Elaeagnus angustifolia* L.) is an invasive transformer species, which has spread through the territory of Ukraine. One of the possible causes of the changes in the grassland vegetation cover is the allelopathic activity of the species. It has symbiotic association with the nitrogen-fixing actinomycetes of genus *Frankia* and in that way is able to cause the changes within the boundaries of its phytogenic field (Studnik-Wójcikowska et al., 2009) increasing the content of nitrogen in soil.

During the fieldwork in 2015, there were collected samples of soil in order to conduct an analysis applying the Neubauer & Schneider method on the base of the ecological laboratory of the National University of “Kyiv-Mohyla Academy”.

In the result the morphological parameters of the plants within and beyond the tree crown had no significant differences. Particularly, the average length of the aboveground part of a plant had 18.2 cm and 18.7 cm within and beyond the tree crown respectively. The average length of the underground part of a plant had 9.3 cm and 8.8 cm respectively. The changes in dry biomass were also observed insignificant. In particular, the average dry biomass of the aboveground part of 100 plants within and beyond the tree crown had 0.75 g and 0.81 g respectively; and the average dry biomass of the underground part of 100 plants within and beyond the tree crown had 0.64 g and 0.63 g respectively. The survival rate among the experimental plants slightly differed and correspond 72 % and 84 % within and beyond the tree crown respectively. The statistical analysis showed that the difference in the average length of the aboveground part of a plant was the only one reliable.

Conclusively, the method of Neubauer & Schneider is not appropriate to assess the allelopathic abilities of *E. angustifolia*, as the only one parameter out of four had significant difference within and beyond the tree crown. Also it will be better to take soil samples for the analysis near the old olives where the impact on grassland vegetation cover is more remarkable.