

Evaluation of phytotoxicity of dimethyl sulfoxide by the bioassay with *Lepidium sativum* L.

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Dimethyl sulfoxide (DMSO) is widely used as an industrial solvent and for various medical purposes (Volkova et al., 2019). Reports on the toxicity of DMSO to living organisms vary (Gaylord Chemical Company, L.L.C., n.d.; Erdman and Hsieh, 1969; Zhang et al., 2016; Gallardo-Villagrán et al., 2022). In the biotesting of toxicants, *Lepidium sativum* L. is widely used (Martínez Barroso and Vaverková, 2020; Radlińska et al., 2020; Tkachuk and Okulovych, 2021; Tkachuk et al., 2022). Currently, there is no information on the phytotoxicity of DMSO aqueous solutions for this test plant, which determined the aim of this study.

Phytotoxicity of aqueous solutions of DMSO was assessed using a growth test (Tkachuk et al., 2022). Watercress (*L. sativum*) of the Aphrodite variety was used as a test plant, 10 seeds of which were placed in a Petri dish on filter paper moistened with distilled water (control) or with 0.025%, 0.05% or 0.1% aqueous solution of DMSO (experiment). The research was carried out in triplicate for 5 days, during which on the 3rd day the energy of seed germination (%) of test plants was determined, on the 5th day - seed germination (%) and biometric and morphometric indicators of test plant seedlings (root length and the above-ground part, mm). The results were processed statistically.

It was found that aqueous solutions of DMSO at concentrations of 0.025-0.1% do not show phytotoxic properties according to the growth test with *L. sativum*, in contrast to 10-45% solutions, which showed extreme phytotoxicity according to the growth test with *R. raphanistrum* subsp. *sativus* (Ткачук та Ткачук, 2024). The obtained results indicate that this substance will not demonstrate toxicity to plants at concentrations found in wastewater (0.05-0.08%) (Zhang et al., 2016). At the same time, attention should be paid to assessing the phytotoxicity of DMSO aqueous solutions, the concentration of which is in the range of 0.1-10%, which is a subject for further research.

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The impact of mycotoxin T-2 on metabolic processes in freshwater ecosystems: a study of biochemical changes in the Carp (*Cyprinus carpio* Linnaeus, 1758)

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Mycotoxins are toxic secondary metabolites produced by fungi that can enter freshwater ecosystems and cause significant changes in the metabolism of aquatic organisms, particularly fish. Mycotoxin T-2 belongs to the trichothecene toxins and is one of the most hazardous to aquatic biocoenoses (Kumari & Bhardwaj, 2022). This toxin can affect various physiological and biochemical processes in fish, including protein and glucose metabolism (Sharma & Gupta, 2021).