

EFFECT OF β -DIKETONATE ON GERMINATION AND EARLY SEEDLING GROWTH OF *TRIFOLIUM PRATENSE* L. IN INLET AND OUTLET WASTEWATER FROM THE CVETOJEVAC TREATMENT SYSTEM

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ABSTRACT

This study examined the effect of β -diketonate on the germination and early seedling growth of *Trifolium pratense* L. exposed to water samples from the Cvetojevac wastewater treatment system in Kragujevac. The experiment used a bioassay approach and included the following treatments: control, inlet wastewater, outlet wastewater, β -diketonate solution at a concentration of 50 mg/L, inlet wastewater combined with β -diketonate, and outlet wastewater combined with β -diketonate. The results showed that the greatest root length of *T. pratense* seedlings was recorded in the treatment with outlet wastewater and β -diketonate, while the greatest hypocotyl length was observed in the treatment with inlet wastewater and β -diketonate. Statistically significant differences in root length were found between the control and β -diketonate treatment, between the control and combined treatments, and between the combined treatments containing inlet and outlet wastewater. Significant differences in hypocotyl length were also observed among treatments, particularly among outlet wastewater, β -diketonate alone, and outlet wastewater combined with β -diketonate. The responses recorded in the combined treatments suggest possible stimulatory interactions between β -diketonate and wastewater constituents, although a true synergistic effect cannot be confirmed at this stage. These findings indicate that β -diketonate may influence early plant development under wastewater-related conditions and may be relevant for further phytoremediation-oriented studies and integrated wastewater management approaches. Further research should include additional plant species, different β -diketonate concentrations, chemical characterisation of the treated water, and assessment of pollutant mobility and bioavailability.

Keywords: β -diketonate, *Trifolium pratense* L., wastewater, seed germination, seedling growth, phytoremediation, wastewater treatment.