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## **APPLICATION OF TANNIN-BASED COAGULANT IN THE TERTIARY TREATMENT OF SEWAGE IN SOUTHERN BRAZIL**

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### **Abstract**

This study aimed to evaluate the application of a commercial tannin-based coagulant (Tanfloc) in the tertiary treatment of municipal wastewater and characterize the resulting sludge. Tanfloc effectively removed over 80% of turbidity and approximately 50% of apparent colour. The sludge showed high settling velocity and the presence of phosphorus, and a high concentration of total organic carbon (403.679 mg/Kg) and total Kjeldahl nitrogen (36.775 mg/Kg). The thermogravimetric analysis revealed that the ash content in the Tanfloc sludge was 29%. Regarding pollutants, copper in a concentration above the regulation limits demands special attention. Additionally, viable helminth eggs and faecal coliforms were detected in the by-product. The use of Tanfloc did not affect the toxicity of the wastewater, and the seed germination was positively impacted by Tanfloc sludge. These results suggest that Tanfloc is a competitive coagulant, and its generated sludge has agronomic potential.

*Key words:* tannin-based coagulant, wastewater tertiary treatment, wastewater treatment waste

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