

Dear Editor-in-Chief of Jurnal Ilmu Lingkungan,

We would like to submit our manuscript entitled “**Combination of Gravel, Silica Sand (SiO₂), and Hydraulic Conditions on the Effectiveness of Coffee Wastewater Pollutants Removal**” for consideration for publication in Jurnal Ilmu Lingkungan.

Wastewater generated from coffee processing activities contains high concentrations of suspended solids, organic compounds, and nutrients that may cause environmental pollution if not properly treated. The development of simple, efficient, and low-cost wastewater treatment technologies is therefore essential, particularly for small-scale coffee agroindustries commonly found in rural areas.

The objective of this study is to evaluate the effectiveness of a physical filtration system using combinations of **gravel and silica sand (SiO₂) filtration media heights** and different **hydraulic discharge conditions** in improving the quality of coffee processing wastewater. The experiment applied three variations of filtration media combinations (10:5 cm, 7.5:7.5 cm, and 5:10 cm) and two discharge rates (5.5 mL s⁻¹ and 9.5 mL s⁻¹). The results indicate that the optimal filtration configuration is **5 cm gravel and 10 cm silica sand with a discharge of 5.5 mL s⁻¹**, which achieved significant reductions in turbidity, BOD, COD, ammonia (NH₃), and phosphate (PO₄) by **61.65%, 50.66%, 49.00%, 53.75%, and 76.99%**, respectively, with a hydraulic retention time of four hours.

The novelty of this research lies in the **integration of filtration media stratification and hydraulic operational parameters** to determine an effective configuration for improving pollutant removal efficiency in coffee processing wastewater. The findings contribute to the development of a practical and environmentally sustainable filtration-based treatment system that can be applied in small-scale agroindustrial wastewater management.

We confirm that this manuscript is original, has not been published previously, and is not currently under consideration for publication elsewhere. All authors have read and approved the manuscript and agree with its submission to Jurnal Ilmu Lingkungan.

We believe that the results presented in this study are relevant to the scope of the journal, particularly in the fields of environmental pollution control, wastewater treatment technology, and sustainable environmental management.

Thank you for your time and consideration. We appreciate the opportunity to submit our work to Jurnal Ilmu Lingkungan and look forward to your response.

Sincerely,

Best Regards

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