

عنوان مقاله:

Combination of pozzolan and sawdust as biofilter for textile wastewater treatment

محل انتشار:

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خلاصه مقاله:

Background: Inappropriate management of textile wastewater results in environmental pollution. To counter this, biofilters or biofilm systems serve as alternatives. Biofilters work like a filter, with a media stack that aids in the filtration process. In this study, pozzolan and sawdust were used as media. The present study aimed to identify the difference in average color content, chemical oxygen demand (COD), and chromium of textile wastewater after passing through a single biofilter versus a combination biofilter. Methods: This study employs a post-test with a control design experimental research design. The research population is the total textile wastewater produced by the X industry located in Cimahi city, Indonesia. The grab sampling technique was employed to collect ۳۰ L of textile wastewater for each treatment using both the single biofilter (composed solely of sawdust) and the combination biofilter (mixture of sawdust and pozzolan). Results: There are significant differences in color, COD, and chromium content averages between single and combined biofilter treatments, supported by P values of ۰.۰۱۲, ۰.۰۰۴, and ۰.۰۱۰. The single biofilter exhibited higher percentage reductions in color and chromium (۱۴.۲۵% and ۹۰.۸۳%, respectively) compared to the combination biofilter. In contrast, the combination biofilter achieved a remarkable COD reduction of up to ۷۹.۴۵% compared to the single biofilter. Conclusion: The results of the present study showed that the single biofilter had a higher capacity to remove color and chromium compared to the combination biofilter. Meanwhile, the combination biofilter was found to be more effective in removing COD compared to the single biofilter.

کلمات کلیدی:

Wastewater, Chromium, Water purification, Textiles, Biofilms

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