Analisis Penyisihan Kandungan Pencemar Organik dan Biologis pada Lindi TPA Cipayung dengan Fitoremediasi = Analysis Removal of Organic and Biological Contaminants in leachate of Cipayung Landfill Site by Phytoremediation

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Abstrak

Saat ini TPA Cipayung tidak memiliki unit pengolahan lindi, sehingga lindi dialirkan menuju Kali Pesanggrahan. Penelitian ini bertujuan untuk menganalisis potensi fitoremediasi yang ditinjau dari pengaruh persentase luas tutupan dan jenis tanaman air yang optimal dalam penyisihan pencemar dari lindi TPA Cipayung. Tahapan penelitian terdiri dari observasi lapangan, range finding test, adaptasi dan fitoremediasi. Penelitian ini menggunakan metode fitoremediasi dengan tanaman eceng gondok dan kayu apu. Eceng gondok mampu menyisihkan parameter TDS, TSS, COD, BOD, dan total koliform berturut-turut sebesar 33%, 32%, 20%, 25%, dan 39%, sedangkan kayu apu sebesar 24%, 28%, 25%, 34%, dan 43%. Berdasarkan uji statistik, persentase luas tutupan tanaman memiliki korelasi positif tidak signifikan (sig >0,05) dengan persentase penyisihan pencemar yaitu TSS, COD dan BOD. Hubungan korelasi didapatkan jika semakin besar persentase luas penutupan tanaman, maka akan semakin besar nilai persentase penyisihan parameter pencemar. Selain itu, hasil uji korelasi antara jenis tanaman dengan penurunan persentase penyisihan pencemar menujukan korelasi negatif pada parameter COD, BOD, dan total koliform. Hasil dari penelitian ini yaitu eceng gondok lebih baik dalam menurunkan pencemar dibandingkan kayu apu. Penerapan fitoremediasi pada TPA Cipayung direncanakan pada unit constructed wetland.
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Cipayung Landfill does not have a leachate treatment, so the leachate flows into the Pesanggrahan River. This study aims to analyze the potential of phytoremediation with the percentage of the cover area and the optimal type of aquatic plants in removing pollutants. The research stages included observation, range finding test, adaptation and phytoremediation. This study used phytoremediation with water hyacinth and water lettuce. Water hyacinth was able to remove TDS, TSS, COD, BOD, and total coliform parameters by 33%, 32%, 20%, 25%, and 39%, while water lettuce was 24%, 28%, 25%, 34%, and 43%. Based on statistical tests, the percentage of plant cover area has an insignificant positive correlation (sig>0,05) with the removal efficiency TSS, COD and BOD. The correlation relationship is if the more significant the percentage of plant cover area, the greater the removal efficiency pollutant. The correlation test results between plant types and the decrease in the percentage of pollutant removal showed a negative correlation in COD, BOD, and total coliform parameters. This study concludes that water hyacinth is better at reducing contaminants than water lettuce. The constructed wetland unit plans the application of phytoremediation in the Cipayung landfill.