

Penurunan kadar total coliform dengan sinar ultraviolet pada air limbah IPAL Puskesmas X di Jakarta = Reduction of total coliform with ultraviolet rays in WWTP wastewater at district X health center in Jakarta

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Abstrak

Latar Belakang Penelitian ini bertujuan untuk mengetahui waktu yang efektif dalam menurunkan kadar total coliform dengan menggunakan sinar ultraviolet pada air limbah terolah di outlet Instalasi Pengolahan Air Limbah Puskesmas X Jakarta Tahun 2022.

Metode Penelitian ini menggunakan metode penelitian kuantitatif dengan desain studi eksperimen. Jumlah sampel penelitian ini sebanyak 64 sampel air limbah terolah pada outlet di Instalasi Pengolahan Air Limbah Puskesmas X Jakarta. Data kadar total coliform didapatkan dari hasil pemeriksaan sampel di laboratorium terakreditasi. Sinar ultraviolet menggunakan lampu TL UVC merk Philips dengan daya 15 watt.

Hasil Berdasarkan rata-rata persentase penurunan kadar Total Coliform pada sampel setelah mendapatkan perlakuan dengan sinar ultraviolet setelah 2 menit sebesar 10%, setelah 4 menit sebesar 21,25%, setelah 6 menit sebesar 26,75%, setelah 8 menit sebesar 42,5%, setelah 10 menit sebesar 58,75%. Persentase penurunan total coliform setelah 10 menit penyinaran memiliki efektifitas yang paling tinggi. Dari uji korelasi diketahui bahwa ada hubungan yang kuat antara lama penyinaran ultraviolet dengan penurunan total Coliform.

.....Background This study aims to determine the effective time to reduce total coliform levels by using ultraviolet light in treated wastewater at the outlet of the Wastewater Treatment Plant of Health Center X in Jakarta in 2022.

Methods This research uses quantitative research methods with an experimental study design. The number of samples in this study were 64 samples of treated wastewater at the outlets of the Wastewater Treatment Plant of Public Health Center X Jakarta. Data on total coliform levels were obtained from the results of examination of samples in an accredited laboratory. Ultraviolet light using Philips brand TL UVC lamp with 15 watts of power.

Results Based on the average percentage decrease in Total Coliform levels in the sample after receiving treatment with ultraviolet light after 2 minutes by 10%, after 4 minutes by 21.25%, after 6 minutes by 26.75%, after 8 minutes by 42.5 %, after 10 minutes of 58.75%. The percentage of total coliform decrease after 10 minutes of irradiation had the highest effectiveness. From the correlation test, it is known that there is a strong relationship between the duration of ultraviolet irradiation and the decrease in total Coliform.