**Politeknik Kesehatan Kemenkes Bandung**

**Program Sarjana Terapan Sanitasi Lingkungan**

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## ABSTRAK

**Awit Dhanayu**

**PERBEDAAN LAMA WAKTU PAPARAN SINAR UV-C TERHADAP PENURUNAN BAKTERI TOTAL *COLIFORM* PADA AIR BERSIH DI PT. PINDAD (PERSERO)**

**IX + 74 halaman + 6 tabel + 5 gambar + 5 lampiran**

Air berperan sangat penting bagi kebutuhan di bidang perindustrian. Air bersih harus memenuhi persyaratan secara kualitas mulai dari fisik, kimia, biologi dan secara kuantitas agar menunjang sarana proses higiene dan sanitasi untuk aktifitas pekerja yang ada di lingkungan industri. Kualitas bakteriologis air bersih di PT. Pindad (Persero) tidak memenuhi syarat karena terindikasi total *Coliform* > 2400 APM/mL sampel melebihi standar baku mutu 50 APM/100 mL. untuk itu perlu dilakukan pengolahan air secara lanjutan dengan cara desinfeksi. Desinfeksi yang dilakukan menggunakan sinar UV-C dengan panjang gelombang 254 nm karena paling efektif dalam membunuh bakteri total *Coliform* dengan kedalaman air 5 cm. penelitian ini merupakan eksperimen dengan rancangan *posttest with control* dengan sampel air bersih di PT. Pindad (Persero). Tujuan Penelitian ini Mengetahui perbedaan lama waktu paparan desinfeksi sinar UV-C terhadap penurunan total *Coliform* pada air bersih di PT Pindad (Persero). Perlakuan yang dilakukan dalam penelitian ini menggunakan variasi waktu paparan 3 menit, 4 menit, dan 5 menit dengan banyak pengulangan sebanyak 6 kali. Teknik pengambilan sampel yang dilakukan yaitu *purposive sampling*. Hasil penelitian menunjukkan rata-rata persentase penurunan jumlah bakteri total *Coliform* dengan waktu paparan 3 menit, 4 menit, dan 5 menit masing-masing sebesar 98,14%, 98,45%, dan 98,71%. Hasil penurunan tertinggi diperoleh pada lama waktu paparan 5 menit. Semakin lama waktu paparan yang digunakan maka semakin banyak bakteri yang tereduksi.

Kata Kunci : Bakteri Total *Coliform*, Air Bersih, Waktu Paparan, Desinfeksi Sinar UV-C.

Daftar Pustaka : (48) 1994 – 2019

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## ABSTRACT

**Awit Dhanayu**

**DIFFERENCES OF TIME EXPOSURE TO UV-C LIGHT ON THE DECREASE OF TOTAL *COLIFORM* BACTERIA IN CLEAN WATER IN PT. PINDAD (PERSERO)**

**IX + 74 pages + 6 table + 5 image + 5 attachment**

Water plays a very important role for the needs in the industrial sector. Clean water must meet quality requirements ranging from physical, chemical, biological and quantitative in order to support the hygiene and sanitation process facilities for the activities of workers in the industrial environment. Bacteriological quality of clean water at PT. Pindad (Persero) did not meet the requirements because it indicated that the total Coliform > 2400 APM/mL of the sample exceeded the quality standard of 50 APM/100 mL. For this reason, it is necessary to carry out further water treatment by means of disinfection. Disinfection was carried out using UV-C light with a wavelength of 254 nm because it was most effective in killing total Coliform bacteria with a water depth of 5 cm. This research is an experiment with a posttest with control design with clean water samples at PT. Pindad (Persero). The purpose of this study was to determine the difference in the duration of exposure to UV-C light disinfection on the reduction of total Coliform in clean water at PT Pindad (Persero). The treatment carried out in this study used variations in exposure time of 3 minutes, 4 minutes, and 5 minutes with many repetitions 6 times. The sampling technique used is purposive sampling. The results showed that the average percentage reduction in the total number of Coliform bacteria with exposure time of 3 minutes, 4 minutes, and 5 minutes was 98.14%, 98.45%, and 98.71%, respectively. The highest reduction results were obtained at a long exposure time of 5 minutes. The longer the exposure time used, the more bacteria are reduced.

Keywords : Total *Coliform* Bacteria, Clean Water, Exposure Time, UV-C Light Disinfection..

Library List : (48) 1994 – 2019