

**Abstrak**

**Yusnita Kristanti**

**PERBEDAAN WAKTU KONTAK SINAR UV-C TERHADAP  
PENURUNAN TOTAL *COLIFORM* PADA AIR BERSIH  
DI PT. X**

**vii + 57 Halaman + 11 Tabel + 4 Gambar + 5 Lampiran**

Bakteri *Coliform* merupakan suatu kelompok bakteri yang digunakan sebagai indikator polusi kotoran dan sanitasi yang tidak baik terhadap air dan makanan. Total *Coliform* dalam sumur bor 2 sebesar 69 CFU/100ml. Dampak yang disebabkan oleh bakteri *Coliform* bagi kesehatan yaitu disentri, diare, hepatitis, *gastroenteritis*. Salah satu pengendalian yang dapat dilakukan yaitu dengan desinfeksi. Desinfeksi yang dapat digunakan untuk menurunkan total *Coliform* pada air bersih yaitu sinar ultraviolet. Radiasi sinar ultraviolet dapat membunuh bakteri tanpa meninggalkan sisa radiasi dalam air bersih. Tujuan dari penelitian untuk mengetahui perbedaan waktu kontak sinar UV-C terhadap penurunan total *Coliform* pada air bersih di PT. X. Jenis penelitian ialah *pretest posttest without control*. Penelitian dilakukan dengan 3 perlakuan, masing-masing pengulangan sebanyak 6 kali. Populasinya adalah seluruh air bersih berasal dari sumur bor 2 di PT. X dengan sampel sebanyak 36 sampel. Teknik pengambilan sampel *grab sampling*, alat pengumpul data berupa alat ukur CFU (*Colony Forming Unit*), *thermohygrometer*, *thermometer* dan pH meter. Teknik pengumpulan data dilakukan dengan pemeriksaan laboratorium, pengukuran suhu, dan pH air. Hasil persentase rata-rata penurunan pada waktu kontak 3 menit sebesar 80% dengan jumlah total *Coliform* yaitu 14 CFU/100 ml, waktu kontak 6 menit rata-rata persentase 87% jumlah total *Coliform* sebanyak 9 CFU/100 ml, dan waktu kontak 9 menit rata-rata persentase yaitu 96% dengan total *Coliform* yaitu 3 CFU/100 ml. Uji One Way Anova menunjukkan *p-value*  $0,000 < \alpha$  (0,05) artinya terdapat perbedaan waktu kontak sinar UV-C terhadap penurunan total *Coliform* pada air bersih di PT. X. Saran dalam penelitian terhadap PT. X dapat menggunakan sinar UV-C sebagai alternatif menurunkan total *Coliform*.

DAFTAR PUSTAKA : 32 (1991-2021)

KATA KUNCI : Total *Coliform*, Air Bersih, Waktu Kontak, Sinar UV-C

**Abstract**

**Yusnita Kristanti**

**DIFFERENCE IN CONTACT TIME OF UV-C LIGHT DECREASE  
IN TOTAL *COLIFORM* IN CLEAN WATER AT PT. X**

**vii + 57 Pages + 11 Tables + 4 Images + 5 Attachments**

*Coliform* is one of the bacteria used as an indicator of the absence of dirt and bad conditions in water and food. Total *Coliform* in drill well 2 amounted to 69 CFU/100ml. The impact caused by *Coliform* bacteria on health is dysentery, diarrhea, hepatitis, *gastroenteritis*. One of the controls that can be done is by disinfection. Disinfection that can be used to lower total *Coliform* in clean water is ultraviolet light. Ultraviolet radiation can kill bacteria without leaving any residual radiation in clean water. The purpose of the study was to find out the difference in UV-C contact time against the total decrease in *Coliform* in clean water in PT. X. This type of research is a *pretest-posttest without control*. The study was conducted with 3 treatments, each repeating 6 times. The population is all clean water comes from drill well 2 in PT. X with a sample of 36 samples. Grab sampling technique, data collection tool in the form of CFU (*Colony Forming Unit*), *thermohyrometer*, *thermometer*, and pH meter. Data collection techniques are carried out by laboratory examination, temperature measurement, and water pH. The average percentage result decreased in contact time of 3 minutes by 80% with the total number of *Coliforms* which is 14 CFU / 100ml, the contact time of 6 minutes averaged 87% percentage of the total number of *Coliforms* as much as 9 CFU / 100ml, and the contact time of 9 minutes average percentage which is 96% with the total *Coliform* which is 3 CFU / 100ml. The One Way ANOVA test showed a p-value of  $0.000 < \alpha (0.05)$  meaning that there was a difference in UV-C light contact time against the total decrease in *Coliform* in clean water in PT. X. Advice in research on PT. X can use UV-C light as an alternative to lowering total *Coliform*.

REFERENCES : 32 (1991-2021)

KEYWORDS : Total *Coliform*, Clean Water, Contact Time, UV-C Light