

Politeknik Kesehatan Kemenkes Bandung

Program D-IV Kesehatan Lingkungan

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Abstrak

Anggi Septiani Fauziah

**PENGARUH PERBEDAAN VARIASI KONTAK WAKTU DESINFEKSI SINAR
ULTRAVIOLET (UV-C) TERHADAP PENURUNAN *ESCHERICIA COLI* AIR
MINUM DI PT BETON ELEMEN PERSADA**

vii + 110 halaman + 15 tabel + 3 gambar + 4 lampiran

Air minum merupakan kebutuhan penting yang tidak dapat dipisahkan dari manusia sehari-harinya dan erat kaitannya dengan kesehatan manusia sehingga kualitas air minum harus diperhatikan terutama pada kualitas bakteriologisnya. Air minum yang tercemar oleh bakteri dapat berdampak buruk terhadap kesehatan manusia dan menimbulkan penyakit. Keberadaan *Eschericia coli* pada sampel air mengindikasikan air minum mungkin tercemar oleh bakteri patogen lain. Sumber air minum didapatkan dari air permukaan yang diolah dengan metode *reverse osmosis*. Berdasarkan data primer yang diperoleh dari hasil pengambilan sampel didapatkan bahwa air minum tersebut tidak memenuhi persyaratan PMK No.492/Menkes/Per/IV/2010 tentang persyaratan kualitas air minum karena ditemukan keberadaan bakteri *Eschericia coli* sebesar 21 APM/100 ml. Untuk menurunkan kadar *Eschericia coli* dilakukan desinfeksi dengan menggunakan sinar *ultraviolet* (UV-C). Tujuan penelitian ini adalah untuk mengetahui perbedaan waktu kontak sinar *ultraviolet* (UV-C) terhadap penurunan kadar *Eschericia coli* pada air minum di PT Beton Elemen Persada. Jenis penelitian ini adalah eksperimen dengan desain penelitian *posttest with control*. Penelitian ini dilakukan dengan mengontakan sinar *ultraviolet* (UV-C) pada air minum dengan variasi waktu 30 detik, 60 detik dan 180 detik. Dilakukan uji *one way anova* dan didapatkan hasil P *value* 0,048 ($\alpha < 0,05$) yang artinya terdapat pengaruh perbedaan variasi waktu kontak terhadap penurunan kadar *Eschericia coli* pada air minum. Variasi waktu kontak yang paling efektif untuk menurunkan kadar *Eschericia coli* adalah 180 detik dengan rata-rata persentase penurunan 96.83%.

Kata Kunci : *Eschericia coli*, E.coli, Air Minum, *Ultraviolet*, Variasi Waktu

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Abstract

Anggi Septiani Fauziah

THE EFFECT OF DIFFERENCES IN TIME CONTACTS OF ULTRAVIOLET (UV-C) RAYS ON DRINKING WATER ESCHERICIA COLI REDUCTION IN PT BETON ELEMEN PERSADA

vii + 110 halaman + 15 tabel + 3 gambar + 4 lampiran

Drinking water is an important requirement that cannot be separated from humans daily needed and is closely related to human health so that the quality of drinking water must be considered especially on bacteriological quality. Drinking water that is polluted by bacteria can harm human health and cause disease. The presence of Escherichia coli in water samples indicated that drinking water may be contaminated by other pathogenic bacteria. The source of drinking water is obtained from the surface water which is treated by the reverse osmosis method. Based on primary data obtained from the sampling results, it was found that the drinking water did not meet the requirements of PMK No.492 / Menkes / Per / IV / 2010 regarding drinking water quality because of the presence of Escherichia coli was found at 3 APM / 100 ml. To reduce levels of Escherichia coli, disinfection is carried out using ultraviolet light (UV-C). The purpose of this research was to determine the difference in a contact time of ultraviolet (UV-C) to decrease levels of Escherichia coli in drinking water at PT Beton Elemen Persada. This type of research is an experimental research design with a posttest with control. This research was conducted by contacting ultraviolet light (UV-C) in drinking water with a variation of time of 30 seconds, 60 seconds, and 180 seconds. One way ANOVA test was performed and a P-value of 0.048 ($\alpha < 0.05$) was obtained, which means that there was an influence of differences in contact time variations to decreasing levels of Escherichia coli in drinking water. The variation of the most effective contact time to reduce levels of Escherichia coli is 180 seconds with an average percentage reduction of 96.83%.

Keyword : Escherichia coli, E.coli, Drinking Water, Ultraviolet, Variation of Time

