ABSTRAK

Latar Belakang : Mikroorganisme sebagai makhluk hidup berukuran kecil dapat ditemukan hampir di semua tempat dan dapat menginfeksi orang sehat melalui udara yang terbawa bersama droplet atau partikel debu. Laboratorium merupakan ruangan untuk kegiatan pembelajaran memiliki potensi terhadap adanya mikroba kontaminan udara dalam jumlah tinggi. Pengendalian angka kuman udara menggunakan radiasi sinar ultraviolet dengan panjang gelombang paling efektif mematikan mikroorganisme adalah 253,7 nm. Faktor yang mempengaruhi efektivitas sinar ultraviolet antara lain intensitas cahaya, lama penyinaran dan jarak penyinaran.

Tujuan Penelitian : Untuk mengetahui perbedaan jumlah angka kuman udara dan persentase penurunan angka kuman udara setelah disinari ultraviolet pada jarak 2,5 meter dan 3 meter di ruang laboratorium Jurusan Analis Kesehatan Poltekkes Kemenkes Yogyakarta.

Metode : Penelitian ini menggunakan metode *quasi experiment* atau eksperimen semu dengan rancangan penelitian *Non Equivalent Control Group.*

Hasil : Rata – rata jumlah angka kuman udara sebelum penyinaran lampu ultraviolet sebesar 10,5 CFU/m^3, setelah penyinaran pada jarak 2,5 meter sebesar 4 CFU/m^3 dan pada jarak 3 meter 7,06 CFU/m^3. Persentase rerata penurunan angka kuman setelah penyinaran lampu ultraviolet pada jarak 2,5 meter sebesar 61,17% dan jarak 3 meter 32,70%. Uji statistik Non-Parametrik *Kruskal Wallis* diperoleh nilai *Asymp. Sig* 0.000.

Kesimpulan : Ada perbedaan angka kuman udara sebelum dan setelah dilakukan penyinaran lampu ultraviolet pada jarak 2,5 meter dan 3 meter di ruang laboratorium Jurusan Analis Kesehatan Poltekkes Kemenkes Yogyakarta, dan persentase penurunan angka kuman udara pada jarak 2,5 meter sebesar 61,17% dan jarak 3 meter sebesar 32,70%.

Kata Kunci : Angka kuman udara, jarak penyinaran, sinar ultraviolet

ABSTRACT

Background of the Study: Small creatures of microorganisms found in every place can infect healthy people by the air carried with droplets or dust. Laboratory as a place for learning activity has the high potential of air microbial contamination risks. The numbers of airborne germs controls using ultraviolet radiation with the wave 253,7 nm can be the effective way for killing microorganisms. Some factors affecting ultraviolet light effectiveness are light intensity, time exposure, and distance.
The Objective of the Study: To find out the differences of airborne germs number and the percentage of the reduction after giving ultraviolet light exposure at the distance of 2,5 and 3 meters at the Health Analyst Laboratory of Polytechnic Health Ministry Yogyakarta
Research Method: This research used *quasi-experimental* method by using *Non-Equivalent Control Group*
Findings: The average of airborne germs number before giving ultraviolet light exposure was 10,5 CFU/$m^{3.}$ and after giving the ultraviolet light at the distance of 2,5 meters and 3 meters consecutively showed 4 CFU/m^3 and 7,6 CFU/m^3. Moreover, the average percentage of airborne germs reduction after ultraviolet light exposure at the distance of 2,5 meters and 3 meters consecutively were 61,17% and 32,70%. According to Non-parametric statistic test by *Kruskal Wallis,* it showed *Asymp. Sig* 0.000 value.
Conclusion: There were different airborne germs numbers before and after getting ultraviolet light exposure treatment in the Analyst Health Department Laboratory of Polytechnic Health Ministry Yogyakarta. Besides, it showed that the percentage of the number of airborne germs reduction at the distance of 2,5 and 3 meters consecutively were 61,17% (2,5 meter) and 32,7% (3 meter).

Keywords : airborne germs number, exposure distance, UV light