

**PERBEDAAN ANGKA JAMUR UDARA SEBELUM DAN SESUDAH
PENYINARAN LAMPU ULTRAVIOLET 180 WATT
DAN 216 WATT**

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ABSTRAK

Latar Belakang: Spora jamur yang ada di udara mudah tersebar dan mudah masuk kedalam tubuh manusia melalui proses inhalasi, trauma maupun pencernaan. Spora jamur dapat menyebabkan reaksi alergi, asma, rhinitis dan sinusitis. Peraturan Menteri Kesehatan Republik Indonesia Nomor 1077/Menkes/PER/V/2011 menyatakan bahwa angka jamur udara dalam ruangan yaitu $< 0 \text{ CFU/m}^3$. Hal ini menunjukkan bahwa udara laboratorium yang bersih dan steril sangat diperlukan. Salah satu cara menurunkan angka jamur udara adalah dengan penyinaran sinar ultraviolet. Sinar ultraviolet dapat menyebabkan kerusakan sel DNA dengan membentuk ikatan antar molekul timin yang bersebelahan membentuk dimer timin. Dimer timin dapat menyebabkan kegagalan replikasi DNA sehingga dapat menyebabkan kematian sel.

Tujuan Penelitian: Mengetahui perbedaan angka jamur udara sebelum dan sesudah penyinaran lampu ultraviolet 180 Watt dan 216 Watt.

Metode: Jenis penelitian ini adalah *quasy experiment* dengan desain penelitian *non equivalent control group design*. Objek penelitian ini adalah jumlah koloni jamur udara sebelum dan sesudah disinari dengan lampu ultraviolet 180 Watt dan 216 Watt selama 30 menit.

Hasil Penelitian: Rerata persentase penurunan angka jamur udara pada penggunaan lampu ultraviolet 180 watt (12 Lux) adalah 24% dengan rata-rata penurunan $6,3 \text{ CFU/m}^3$ sedangkan rerata persentase penurunan angka jamur udara pada penggunaan lampu ultraviolet 216 watt (13,6 Lux) adalah 28% dengan rata-rata penurunan $4,7 \text{ CFU/m}^3$. Hasil Uji statistik Mann-Whitney diperoleh *Asym.sig (2-tailed)* 0,226.

Kesimpulan: Tidak ada perbedaan angka jamur udara sebelum dan sesudah penyinaran lampu ultraviolet 180 watt dan 216 watt.

Kata Kunci:

Sinar ultraviolet, watt, lux, angka jamur udara

THE DIFFERENCE IN AIR MOLD FIGURE BEFORE AND AFTER 180-WATT AND 216-WATT ULTRAVIOLET LAMPS EXPOSURE

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ABSTRACT

Background: Fungal spores in the air are easily spread and enter human bodies through the process of inhalation, trauma, and digestion. Fungal spores can cause allergic reactions, asthma, rhinitis, and sinusitis. Regulation of the Minister of Health of the Republic of Indonesia Number 1077/Menkes/PER/V/2011 states that indoor air mold is < 0 CFU/m³. This shows that clean and sterile laboratory air is needed. One way to reduce the number of air molds is by irradiating them with ultraviolet light. Ultraviolet light can cause damage to DNA cells by forming bonds between adjacent thymine molecules to form thymine dimers. Thymine dimers can cause the failure of DNA replication which can lead to cell death.

Research purposes: To know the difference in the number of air molds before and after 180-watt and 216-watt ultraviolet lamps exposure.

Method: This type of research is a quasi experimental research design with a non-equivalent control group design. The object of this research is the number of air mold colonies before and after 180-watt and 216-watt ultraviolet lamps exposure for 30 minutes.

Research result: The average percentage of the decrease in the number of air molds with the use of a 180-watt ultraviolet lamp (12 Lux) was 24% with an average decrease of 6.3 CFU/m³ while the average percentage of the decrease in the number of air molds with the use of a 216-watt ultraviolet lamp (13.6 Lux) was 28% with an average decrease of 4.7 CFU/m³. The result of the Mann-Whitney statistical test is Asym.sig (2-tailed) 0.226.

Conclusion: There is no difference in the number of air molds before and after 180-watt and 216-watt ultraviolet lamps irradiation.

Keywords:

Ultraviolet light, watts, lux, air mold numbers