

**PENGARUH PEMBERIAN KRIM KURKUMIN TEMULAWAK TERHADAP JUMLAH
MELANIN PADA KULIT MARMOT
(*Cavia porcellus*) YANG TERPAPAR SINAR ULTRAVIOLET B**

TESIS



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Abstrak

Latar Belakang

Efektivitas kurkumin temulawak sebagai agen antihiperpigmentasi hingga saat ini masih terus diteliti. Kurkumin terbukti secara *in vitro* menghambat aktivitas enzim tirosinase dan proses melanogenesis. Penelitian lebih lanjut melalui uji *in vivo* sangat penting untuk mengetahui dosis yang efektif terhadap jumlah melanin.

Tujuan

Mengetahui pengaruh pemberian krim kurkumin temulawak terhadap jumlah melanin pada kulit marmot yang terpapar sinar ultraviolet B.

Subjek dan Metode

Penelitian eksperimental ini menggunakan desain *post-test only control group* dengan 25 ekor marmot (*C. porcellus*) yang dibagi 5 kelompok. Setiap kelompok mendapat pajanan sinar UVB 3 kali seminggu selama 2 minggu dengan dosis total 390 mJ/cm². Kelompok kontrol negatif (K(-)) diberi krim dasar, kontrol positif (K(+)) diberi krim hidrokuinon 4%, kelompok perlakuan diberi krim kurkumin temulawak dengan konsentrasi 1% (P1), 4% (P2), dan 5% (P3). Krim dioleskan dua kali sehari, sebelum dan setelah pajanan UVB selama 2 minggu. Setelah itu, biopsi jaringan kulit dilakukan histopatologi dengan pewarnaan Masson-Fontana, dan jumlah melanin dihitung menggunakan *software ImageJ* berdasarkan persentase area melanin dalam jaringan epidermis.

Hasil

Hasil penelitian menunjukkan rerata jumlah melanin tertinggi terdapat pada kelompok K (-) sebesar 1,47. Jumlah melanin terendah terdapat pada kelompok P3 sebesar 0,69, sedangkan jumlah melanin pada kelompok P1 sebesar 1,57, kelompok P3 sebesar 1,23 dan kelompok K (+) adalah 0,77. Terdapat perbedaan bermakna antar kelompok dengan ANOVA $p < 0,001$. Hasil analisis *post hoc* menunjukkan kelompok P3 berbeda bermakna dengan kelompok K(-) dengan $p < 0,001$.

Kesimpulan

Dari 3 kelompok perlakuan, hanya kelompok P3 yang terdapat pengaruh pemberian krim kurkumin temulawak terhadap penurunan jumlah melanin pada kulit marmot yang terpapar sinar ultraviolet B.

Kata kunci: *in vivo*, kurkumin, melanogenesis

**THE EFFECT OF CURCUMIN CREAM APPLICATION ON
THE MELANIN CONTENT IN THE SKIN OF GUINEA
PIGS
(*C. porcellus*) EXPOSED TO ULTRAVIOLET B RAYS.**

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Abstract

Background

The effectiveness of curcumin until now as an anti-hyperpigmentation agent is still being studied. Curcumin has been proven in vitro to inhibit the activity of the tyrosinase enzyme and the melanogenesis process. Further research through in vivo tests is essential to determine the effective dose for melanin levels.

Objective

To determine the effect of administering curcumin cream on the amount of melanin in the skin of guinea pigs exposed to ultraviolet B rays.

Subject and Method

This experimental study used a post-test only control group design with 25 guinea pigs (*C. porcellus*) divided into 5 groups. Each group was exposed to UVB light 3 times a week for 2 weeks with a total dose of 390 mJ/cm². The negative control group (K(-)) was given placebo cream, the positive control (K(+)) was given 4% hydroquinone cream, the treatment group was given curcumin cream with concentrations of 1% (P1), 4% (P2), and 5% (P3). The cream was applied twice a day, before and after UVB exposure for 2 weeks. After that, skin tissue biopsies were histopathologically examined with Fontana-Masson staining, and the amount of melanin was calculated using ImageJ software based on the percentage of melanin area in the epidermis tissue.

Result

The results showed that the highest average melanin count was in the K(-) group at 1.47. The lowest melanin count was in the P3 group at 0.69, while the melanin count in the P1 group was 1.57, the P2 group was 1.23 and the K(+) group was 0.77. There was a significant difference between groups with ANOVA $p < 0.001$. The results of the post hoc analysis showed that the P3 group was significantly different from the K(-) group with $p < 0.001$.

Conclusion

Of the 3 treatment groups, only P3 showed an effect of administering curcumin cream on reducing the amount of melanin in the skin of guinea pigs exposed to ultraviolet B light. **Keywords:** curcumin, in vivo, melanogenesis