

## ABSTRAK

### EFEKTIVITAS KRIM EKSTRAK KULIT BATANG NANGKA ( *Arthocarpus Heterophilus*) TERHADAP SUNBURN CELL, SERAT ELASTIN, dan MMP-1 ( Studi Eksperimental tikus wistar jantan ( *Rattus Norvegicus* ) yang dipapar sinar UV-B )

**Latar belakang:** Krim ekstrak kulit batang nangka konsentrasi 4% terbukti mencegah peningkatan jumlah melanin pada kulit marmut yang dipapar sinar ultraviolet B. Penggunaan krim ekstrak kulit batang nangka dan efeknya terhadap sunburn sel, serat elastin dan MMP-1 pada tikus Wistar jantan yang dipapar UV-B belum pernah dilaporkan.

**Metode :** Penelitian eksperimental dengan *post test control group design*. Kelompok kontrol, P1, dan P2 masing-masing dipapar sinar UV-B, pada P1 ditambah krim ekstrak kulit batang nangka konsentrasi 2% dan P2 ditambah krim ekstrak kulit batang nangka konsentrasi 4%.

**Hasil :** Analisa sunburn sel dan MMP-1 menggunakan uji *Kruskall-Wallis* dilanjutkan uji *Mann-Whitney*. Rerata jumlah *sunburn cell* pada tiap kelompok (kelompok kontrol sebesar  $2,40 \pm 0,16$ ; perlakuan 2% sebesar  $1,35 \pm 0,10$  dan perlakuan 4% sebesar  $0,45 \pm 0,10$ ). Rerata MMP-1 pada tiap kelompok (kelompok kontrol sebesar  $8,10 \pm 0,20$ ; perlakuan 2% sebesar  $5,55 \pm 0,19$  dan perlakuan 4% sebesar  $3,50 \pm 0,16$ ). Serat Elastin menggunakan *One Way Anova* dilanjutkan uji *Pos Hoc LSD*. Rerata jumlah elastin pada tiap kelompok (kelompok kontrol sebesar  $11,85 \pm 0,34$ ; perlakuan 2% sebesar  $14,30 \pm 0,42$  dan perlakuan 4% sebesar  $18,15 \pm 0,30$ ).

**Kesimpulan :** Pemberian krim ekstrak kulit batang nangka konsentrasi 2% dan 4% dapat menurunkan jumlah sunburn cell, meningkatkan serat elastin dan menurunkan MMP-1 pada tikus wistar jantan yang dipapar sinar UV-B

**Kata Kunci :** Krim ekstrak kulit batang nangka, sunburn cell, serat elastin, MMP-1

## ABSTRACT

### EFFECTS OF CREAM CONTAINING *Arthocarpus Heterophilus* EXTRACT ON SUNBURN CELL, ELASTIN FIBER, and MMP-1 (Experimental Study in male wistar rats (*Rattus Norvegicus*) exposed to UV-B light)

**Background:** The 4% concentration of jackfruit bark extract has been shown to be able to prevent an increase in the amount of melanin in the skin of guinea pigs exposed to ultraviolet. The photoprotective effect of *Arthocarpus Heterophilus* has not been reported. This study aimed to determine the effect of cream containing *Arthocarpus Heterophilus* extract on sunburn cell, elastin fiber and MMP-1 in male rats exposed to UV-B.

**Methods:** In this experimental study with a post test control group design, 36 male Wistar rats were divided into 6 groups. The control group, T1, and T2 were exposed to UV-B radiation. After the exposure, T1 and T2 were treated with the cream containing *Arthocarpus Heterophilus* at the concentration of 2% and 4%, respectively. The skin tissue sample were prepared to evaluate the number of sunburn cell at h 24, elastin fiber and MMP-1 in w4 after treatment. Data were analysis using Kruskal-Wallis followed by the Mann-Whitney and One way ANOVA.

**Results:** Mean number of sunburn cells in the three groups was  $2.40 \pm 0.16$ ;  $1.35 \pm 0.10$ ;  $0.45 \pm 0.10$ , respectively. The mean number of elastin fiber in the three groups was  $11.85 \pm 0.34$ ;  $14.30 \pm 0.42$ ;  $18.15 \pm 0.30$ . The mean number of MMP-1 in the three groups was  $8.10 \pm 0.20$ ;  $5.55 \pm 0.19$ ;  $3.50 \pm 0.16$  respectively. There was a significant different among the groups ( $p < 0.05$ ).

**Conclusion:** The cream containing *Arthocarpus Heterophilus* the concentration of 2% dan 4% can reduce the number of sunburn cell, increase elastin fiber and reduce MMP-1 in male wistar rats exposed to UV-B rays

**Keywords:** Cream of jackfruit bark extract, sunburn cell, elastin fiber, MMP-1