

## **ABSTRACT**

**Background** : Propolis is a dark and sticky substance produced by bees. Propolis in the world of health was known to have benefits as anti-inflammatory, antioxidant, antibacterial, antiviral, antifungal, and antitumor. However, propolis has the potential of being toxic if used as herbal medicine. **Purpose** : This study aim is to tests the effect of cytotoxic ethanol extract of propolis (EEP) on viability of cultured fibroblast cells.. **Method** : The design of this study was pure laboratory experimental in vitro. Propolis used comes from *Apis trigona* bees and extracted using 40% ethanol. EEP is then used as a treatment on Human Dermal Fibroblast adult (HDFa) cells. The cytotoxic effects of EEP were analyzed based on viability of fibroblast cells calculated by the method of MTT assay. **Results** : EEP with a concentration of 500 µg / mL had the highest cytotoxic effect because it resulted in a culture of fibroblasts having viability of 8.44%. EEP-treated fibroblast cells show a morphological change observed under a microscope. Morphological changes show few cells become smaller and rounder. Statistical analysis was done by using Spearman correlation test. The coefficient of correlation shows ( $r = -0,839$ ) which means there is a strong and opposite relationship between giving EEP various concentrations and viability of fibroblast cells. **Conclusion** : EEP showed the presence of dose-dependent cytotoxicity on fibroblasts' viability.

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**Keyword** : Ethanol Extract of Propolis, Human Dermal Fibroblast adult, Cell Viability, MTT Assay.

## INTISARI

**Latar Belakang :** Propolis merupakan substansi berwarna gelap dan bersifat lengket yang dihasilkan oleh lebah. Propolis dalam dunia kesehatan diketahui memiliki manfaat sebagai antiinflamasi, antioksidan, antibakteri, antivirus, antifungal, dan antitumor. Disamping manfaatnya, propolis memiliki potensi bersifat toksik apabila digunakan sebagai obat herbal. **Tujuan :** Penelitian ini bertujuan untuk menguji efek sitotoksik ekstrak etanol propolis (EEP) terhadap viabilitas kultur sel fibroblas. **Metode :** Desain penelitian ini adalah eksperimental laboratoris murni secara *in vitro*. Propolis yang digunakan berasal dari lebah *Apis trigona* dan diekstrak menggunakan etanol 40%. EEP kemudian digunakan sebagai perlakuan pada sel *Human Dermal Fibroblast adult* (HDFa). Efek sitotoksik EEP dianalisa berdasarkan viabilitas sel fibroblas yang dihitung menggunakan metode *MTT assay*. **Hasil :** EEP dengan konsentrasi 500 µg/mL memiliki efek sitotoksik tertinggi karena menyebabkan kultur fibroblas mengalami viabilitas terendah sebesar 8,44%. Sel fibroblas yang diberi perlakuan EEP menunjukkan perubahan morfologi apabila diamati dibawah mikroskop. Perubahan morfologi menunjukkan beberapa sel menjadi lebih kecil dan berbentuk bulat. Analisa data secara statistik dilakukan menggunakan uji korelasi *Spearman*. Koefisien korelasi menunjukkan ( $r = -0,839$ ) yang berarti terdapat hubungan kuat dan berlawanan arah antara pemberian EEP berbagai macam konsentrasi dan viabilitas sel fibroblas. **Kesimpulan :** EEP menunjukkan adanya *dose-dependent cytotoxicity* terhadap viabilitas sel fibroblas.

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**Kata kunci:** Ekstrak Etanol Propolis, *Human Dermal Fibroblast adult*, Viabilitas Sel, *MTT Assay*.