

ABSTRACT

ANTIFIBROTIC ACTIVITY OF STANDARDIZED ETHANOLIC EXTRACT OF *T. diversifolia* IN INHIBITION OF KELOID FIBROBLAST PROLIFERATION WITH MTT ASSAY

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Background : Keloid results from abnormal wound healing characterized by massive fibroblast proliferation. Therapy for keloid is relatively limited and mostly has side effects. *T. diversifolia* has widely been researched to have anti-proliferative effect against some cancer cell culture. Thus, this research was conducted to assess *T. diversifolia* potential as an antifibrotic agent.

Objective : This research was conducted to assess antifibrotic activity of standardized ethanolic extract of *T. diversifolia* against keloid fibroblast cell cultures based on given dose and incubation time.

Methods : This research has quasi experimental design. Cytochemistry test was conducted to keloid fibroblast cell cultures with 8 serial doses of ethanolic extract of *T. diversifolia* and 2 incubation times (72 hours and 120 hours). Cell culture viability was assessed with MTT assay and its absorbance was read with ELISA reader.

Results : Keloid fibroblast proliferation inhibition percentage was elevated gradually along with the given doses of *T. diversifolia* extract with very strong correlation ($r=0,838$; $p=0,000$ in 72 hours; $r=0,924$; $p=0,000$ in 120 hours of incubation). There was also significant time-dependent effect ($p=0,005$).

Conclusions : Standardized ethanolic extract of *T. diversifolia* can inhibit keloid fibroblast culture proliferation based on dose given and incubation time with lowest IC_{50} value $3,624 \mu\text{g/mL}$ in 120 hours incubation time.

Keywords : *Tithonia diversifolia*, fibroblast proliferation, antifibrotic, keloid, MTT assay

INTISARI

AKTIVITAS ANTIFIBROTIK EKSTRAK ETANOL TERSTANDAR *T. diversifolia* DALAM MENGHAMBAT PROLIFERASI FIBROBLAS KELOID DENGAN MTT ASSAY

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Latar Belakang : Keloid berasal dari kelainan penyembuhan luka yang ditandai dengan proliferasi masif fibroblas abnormal. Terapi keloid masih terbatas dan berefek samping. *T. diversifolia* banyak diteliti mempunyai efek anti-proliferatif pada beberapa sel kanker. Untuk itulah penelitian ini dilakukan, untuk melihat potensi *T. diversifolia* sebagai agen antifibrotik.

Tujuan : Penelitian ini dilakukan untuk mengetahui efek antifibrotik ekstrak etanol terstandar *T. diversifolia* terhadap proliferasi kultur sel fibroblas keloid berdasarkan variasi dosis dan waktu inkubasi.

Metode : Penelitian dilakukan dengan rancangan eksperimental semu. Uji sitokimia dilakukan pada kultur sel fibroblas keloid dengan pemberian delapan serial dosis ekstrak etanol *T. diversifolia* dan dua waktu inkubasi (72 jam dan 120 jam). Viabilitas kultur sel fibroblas keloid diuji dengan MTT assay dan dibaca absorbansinya dengan menggunakan ELISA reader.

Hasil : Persentase penghambatan proliferasi kultur sel fibroblas keloid meningkat seiring dengan besarnya dosis ekstrak etanol *T. diversifolia* yang diberikan, dengan nilai korelasi yang sangat kuat ($r=0,838$; $p=0,000$ untuk inkubasi 72jam; $r=0,924$; $p=0,000$ untuk inkubasi 120jam). Serta terdapat perbedaan penghambatan berdasar waktu inkubasi secara signifikan ($p=0,005$).

Kesimpulan : Ekstrak etanol terstandar *T. diversifolia* dapat menghambat proliferasi fibroblas keloid yang dipengaruhi dosis dan waktu inkubasi, dengan nilai IC_{50} terkecil $3,624 \mu\text{g/mL}$ pada waktu inkubasi 120 jam.

Kata Kunci : *Tithonia diversifolia*, proliferasi fibroblas, antifibrotik, keloid, MTT assay