Uji Fitokimia dan Sitotoksisitas Ekstrak N-Heksana, Etil Asetat, dan Etanol Teripang (Holothuria scabra) terhadap Sel Kanker Serviks HeLa = Phytochemical Test and Cytotoxicity of N-Hexane, Ethyl Acetate, and Ethanol Extracts of Holothuria scabra against HeLa Cervical Cancer Cells

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Abstrak

Latar belakang: Kanker serviks merupakan penyakit keganasan dengan prevalensi tinggi pada wanita baik di Indonesia maupun di dunia. Pengobatan yang tersedia saat ini dapat berupa terapi operatif ataupun non operatif seperti radiasi dan kemoterapi, tetapi masih terdapat efek samping, resiko yang dapat ditimbulkan, serta biaya yang cukup mahal. Holothuria scabra merupakan bahan alam yang banyak ditemukan di Indonesia serta diketahui memiliki beberapa kandungan dengan aktivitas antikanker namun belum banyak diteliti.
Metode: Holothuria scabra diekstraksi menggunakan pelarut etil asetat, etanol, dan n-heksana. Analisis kandungan metabolit sekunder masing-masing ekstrak dilakukan melalui uji fitokimia dan uji kromatografi lapis tipis (KLT), sementara aktivitas sitotoksik ekstrak terhadap sel kanker serviks HeLa diuji menggunakan metode MTT assay dan dibandingkan dengan doxorubicin.
Hasil: Holothuria scabra memiliki kandungan fitokimia triterpenoid pada ekstrak etil asetat, etanol, dan n-heksana, serta alkaloid pada ekstrak etanol. Aktivitas sitotoksik Holothuria scabra terhadap sel kanker serviks HeLa yang paling kuat dimiliki oleh ekstrak etil asetat dengan nilai IC50 sebesar 26,598 ± 1,091 g/mL, diikuti oleh ekstrak etanol 62,959 ± 3,656 g/mL, dan ekstrak n-heksana 75,385 ± 3,226 g/mL, sementara nilai IC50 doxorubicin sebesar 7,209 ± 0,995 g/mL. Terdapat perbedaan yang signifikan antar masing-masing ekstrak dan doxorubicin.
Kesimpulan: Holothuria scabra mengandung senyawa fitokimia yang memiliki aktivitas antikanker. Ketiga ekstrak menunjukkan aktivitas sitotoksik sedang terhadap sel kanker serviks HeLa.
.....Introduction: Cervical cancer is a malignant disease with a high prevalence among women in Indonesia and the world. Treatment currently available consists of operative or non-operative therapy such as radiation and chemotherapy. However, there are still side effects, risks, and the cost is also expensive. Holothuria scabra is a natural ingredient commonly found in Indonesia and is known to have some anticancer activity that has not been widely studied.
Method: Holothuria scabra was extracted using ethyl acetate, ethanol, and n-hexane as solvents. Analysis of the secondary metabolite content of each extract was carried out through phytochemical tests and thin-layer chromatography tests. In contrast, the cytotoxic activity of the extracts against HeLa cervical cancer cells was tested using the MTT assay and compared with doxorubicin.

Result: Holothuria scabra contains triterpenoid in all extracts, namely ethyl acetate, ethanol, n-hexane extract, and alkaloid in ethanol extract. Among the three Holothuria scabra extracts, ethyl acetate extract had the strongest cytotoxic activity against HeLa cervical cancer cells with an IC50 value of 26.598 ± 1.091 g/mL, followed by ethanol extract of 62.959 ± 3.656 g/mL, and n-hexane extract of 75.385 ± 3.226 g/mL,

meanwhile the IC50 value of doxorubicin was 7,209 ± 0,995 g/mL. There were also significant differences between each extract and doxorubicin.
Conclusion: Holothuria scabra contains phytochemical compounds with anticancer activity and the three extracts showed moderate cytotoxic activity against HeLa cervical cancer cells.