

ANALISIS METABOLIT SEKUNDER EKSTRAK N-HEKSANA BIJI JINTAN HITAM DENGAN SPEKTROFOTOMETRI UV-VIS DAN UJI TOKSISITAS DENGAN METODE BSLT PADA LARVA UDANG (*Artemia salina* Leach)

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INTISARI

Kanker merupakan salah satu masalah kesehatan global yang serius, ditandai oleh pertumbuhan sel abnormal akibat gangguan mekanisme pembelahan sel. Penanganan kanker dapat dilakukan melalui terapi konvensional maupun tradisional. Namun, terapi konvensional sering menimbulkan efek samping yang merugikan, sehingga mendorong pengembangan terapi alternatif berbasis tanaman obat. Salah satu tanaman yang berpotensi sebagai agen antikanker adalah biji jintan hitam (*Nigella sativa* L.) yang berperan sebagai imunostimulan yang dapat mengaktifkan makrofag dan limfosit untuk melawan sel kanker. Penelitian ini bertujuan untuk menganalisis kadar senyawa metabolit sekunder ekstrak N-heksana biji jintan hitam menggunakan metode spektrofotometri UV-Vis, serta menguji toksisitasnya melalui metode BSLT. Ekstrak diperoleh dengan metode maserasi menggunakan pelarut N-heksana, lalu diuji pada larva *Artemia salina* Leach dengan konsentrasi bertingkat (1000–100 ppm) dan diamati selama 24 jam. Nilai LC_{50} dihitung menggunakan analisis probit dan regresi linier. Hasil skrining fitokimia menunjukkan bahwa ekstrak mengandung senyawa terpenoid, flavonoid, saponin. Penetapan kadar dengan spektrofotometri UV-Vis menunjukkan kadar terpenoid tertinggi sebesar 22,19%, disusul flavonoid (6,28%), saponin (1,33%), alkaloid (0,59%), dan tanin (0,32%). Uji toksisitas menunjukkan nilai LC_{50} sebesar 448,88 $\mu\text{g/mL}$, yang tergolong toksik sedang (100–500 $\mu\text{g/mL}$). Hasil ini mengindikasikan bahwa ekstrak N-heksana biji jintan hitam memiliki toksisitas terhadap larva udang.

Kata kunci: Antikanker, *Nigella sativa*, Spektrofotometri UV-Vis, BSLT, LC_{50}

Secondary Metabolite Analysis Of N-Hexane Extract Of Black Cumin Seeds Using UV-Vis Spectrophotometry And Toxicity Testing By BSLT Method On Shrimp Larvae (Artemia salina Leach)

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ABSTRACT

Cancer is a serious global health issue characterized by abnormal cell growth resulting from the dysregulation of cell division mechanisms. Cancer treatment can be performed through conventional therapies. However, conventional therapies often cause detrimental side effects, prompting the development of alternative treatments based on medicinal plants. One plant with potential as an anticancer agent is black cumin seed (*Nigella sativa* L.), which acts as an immunostimulant by activating macrophages and lymphocytes to combat cancer cells. This study aimed to analyze the concentration of secondary metabolites in the n-hexane extract of black cumin seeds using UV-Vis spectrophotometry and to evaluate its toxicity through the Brine Shrimp Lethality Test (BSLT). The extract was obtained by maceration using n-hexane as the solvent, then tested on *Artemia salina* Leach larvae at graded concentrations (1000–100 ppm) and observed for 24 hours. The LC_{50} value was calculated using probit analysis and linear regression. Phytochemical screening revealed that the extract contains terpenoids, flavonoids, saponins, alkaloids, and tannins. Quantitative analysis by UV-Vis spectrophotometry showed the highest concentration of terpenoids (22.19%), followed by flavonoids (6.28%), saponins (1.33%), alkaloids (0.59%), and tannins (0.32%). Toxicity testing yielded an LC_{50} value of 448.88 $\mu\text{g/mL}$, which falls within the range of moderate toxicity (100–500 $\mu\text{g/mL}$). These results indicate that the n-hexane extract of black cumin seeds exhibits moderate toxicity against brine shrimp larvae, suggesting potential bioactivity that warrants further investigation for anticancer applications.

Keywords: Anticancer, *Nigella sativa*, UV-Vis Spectrophotometry, BSLT, LC_{50} .