AKTIVITAS ANTIOKSIDAN DAN ANTIKANKER EKSTRAK DAUN CIPLUKAN (*Physalis angulata*), DAUN KELOR (*Moringa oleifera*) DAN FORMULASI KEDUANYA TERHADAP SEL KANKER PAYUDARA (*MCF-7 CELL LINES*)

SKRIPSI

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Sains

Program Studi biologi

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Skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains pada Program Studi Biologi Fakultas Pendidikan Matematikan dan Ilmu Pengetahuan Alam

LEMBAR PENGESAHAN

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ABSTRAK

Indonesia adalah salah satu negara yang memiliki kekayaan akan tanaman herbal dengan berbagai manfaat untuk kesehatan. *Physalis angulata* (Ciplukan) dan *Moringa oleifera* (Kelor) di Indonesia dikenal sebagai tanaman obat karena beragam aktivitas biologi yang sudah dimanfaatkan selama bertahun-tahun. Penelitian ini dilakukan untuk mengetahui kandungan senyawa yang terkandung dalam Ciplukan dan Kelor melalui GC-MS, mengetahui aktivitas antioksidannya menggunakan metode DPPH dan pengujian toksisitasnya terhadap sel kanker payudara melalui metode *prestoblue*. Diperoleh hasil bahwa daun Ciplukan memiliki 25 senyawa metabolit yang telah diketahui beberapa diantaranya memiliki aktivitas biologi seperti antioksidan, antiproliferasi, antikanker, antidiabetes dan antimikroba, sementara itu pada daun Kelor memiliki 15 senyawa dengan aktivitas biologi yang serupa. Pada hasil pengujian DPPH diperoleh IC_{50} dari ekstrak etanol daun Ciplukan, ekstrak etanol daun Kelor dan Formulasi keduanya secara berturut -turut adalah adalah 568.8; 311.2; dan 364.8 ppm. Diperoleh nilai IC_{50} viabilitas sel ekstrak etanol daun Ciplukan terhadap sel kanker payudara (MCF-7 cell-line) adalah 1445,44 µg/m, sedangkan ekstrak etanol daun kelor terhadap sel sebesar 1516 µg/mL, dan kedua formulasi 1:1 memiliki toksisitas lebih tinggi dibandingkan kontrol positif.

Kata kunci: ekstrak Ciplukan, ekstrak Kelor, antioksidan, antikanker, MCF-7

ABSTRACT

Indonesia is a country that has a wealth of diverse herbal plants with various health benefits. *Physalis angulata* (Ciplukan) and *Moringa oleifera* (Moringa) are known in Indonesia as medicinal plants because of their various biological activities which have been used for years. This research was conducted to determine the content of compounds contained in Ciplukan and Kelor through GC-MS, to determine their antioxidant activity using the DPPH method, and to test their toxicity to breast cancer cells using the *presto blue* method. The results showed that Ciplukan leaves had 25 known metabolite compounds, some of which had biological activities such as antioxidant, antiproliferation, anticancer, antidiabetic, and antimicrobial, while Kelor leaves had 15 compounds with similar biological activities. In the DPPH test results IC50 from Ciplukan leaves ethanol extract, Kelor leaves ethanol extract and their respective formulations of 568.8; 311.2; and 364.8 ppm. The IC50 value of cell viability of the ethanol extract of Ciplukan leaves against breast cancer cells (MCF-7 cell-line) was 1445.44 µg/m, while the ethanol extract of Kelor leaves to cells was 1516 µg/mL, and the formulations 1:1 had higher toxicity than the positive control.

Keywords: Ciplukan extract, Moringa extract, antioxidant, anticancer, MCF-7

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