INTI SARI

Penuaan kulit merupakan proses normal yang dialami oleh manusia. Proses penuaan dapat disebabkan oleh aktivitas intrinsik tubuh berupa aktivitas dari enzim penyebab penuaan seperti enzim kolagenase. Salah satu metode penemuan dan pengembangan senyawa anti penuaan dapat dilakukan dengan metode *in silico*. Penelitian ini bertujuan untuk mengetahui kadar golongan flavonoid serta aktivitas inhibisi enzim kolagenase dari ekstrak tanaman secara *in vitro*.

Berdasarkan hasil skrining virtual *library* senyawa tanaman yang dilakukan pada penelitian sebelumnya, tanaman seledri yang mengandung apigenin serta bunga jengger ayam yang mengandung isorhamnetin dipilih untuk diuji kadar flavonoid total serta aktivitas penghambatan enzim kolagenasenya. Pengujian flavonoid total serta uji aktivitas penghambatan enzim kolagenase dilakukan dengan metode kolorimetri.

Pengujian kadar flavonoid total memperlihatkan kandungan flavonoid pada ekstrak seledri sebesar 5,65±0,19 mgQE/g ekstrak sedangkan ekstrak bunga jengger ayam sebesar 4,52±0,13 mgQE/g ekstrak. Hasil uji enzimatik menunjukkan pada konsentrasi tertinggi, yaitu 200 µg/mL, ekstrak tanaman seledri menunjukkan rata-rata persentase inhibisi sebesar 59,22% sedangkan ekstrak bunga jengger ayam menunjukkan rata-rata sebesar 6,82%. Perhitungan nilai IC_{50} pada sampel ekstrak tanaman seledri menunjukkan nilai sebesar 132,48 µg/mL. Berdasarkan hasil uji yang telah dilakukan, tanaman seledri memiliki kandungan flavonoid yang lebih besar daripada bunga jengger ayam serta potensi yang lebih tinggi dalam menghambat enzim kolagenase.

Kata kunci: *anti aging*, bunga jengger ayam, enzim kolagenase, *in vitro*, tanaman seledri

ABSTRACT

Skin aging is a normal process experienced by humans. The aging process can be caused by the intrinsic activity of the body in the form of the activity of aging-causing enzymes such as collagenase. Research and developing anti-aging compounds can be done by in silico method. This study aims to determine the levels of flavonoids and collagenase enzyme inhibition activity of plant extracts by in vitro method.

Based on the results of the virtual library screening of plant compounds conducted in previous studies, celery containing apigenin and cockscomb flowers containing isorhamnetin were selected to be tested for total flavonoid content and collagenase enzyme inhibitory activity. Both assays were tested using colorimetric method.

The total flavonoid content showed that the flavonoid content in celery extract was 5.65±0.19 mgQE/g extract while the cockscomb flower extract was 4.52±0.13 mgQE/g extract. Enzymatic test results showed that at the highest concentration, 200 µg/mL, celery extract showed an average inhibition percentage of 59.22% while cockscomb flower extract showed an average of 6.82%. The calculation of the IC_{50} value in the celery extract shows a value of 132.48 µg/mL. Based on the test results that have been carried out, celery has a greater flavonoid content and a higher potential in inhibiting collagenase enzymes than cockscomb flowers.

Keyword: *anti aging, celery, cockscomb flower, collagenase, in vitro*