Optimasi Metode Ekstraksi secara Nonkonvensional dan Uji Penghambatan Aktivitas Elastase pada Ekstrak Batang Litsea oppositifolia Gibbs = Optimization of Nonconventional Extraction Methods and Elastase Inhibitory Activity Test of Litsea oppositifolia Gibbs Stem Extract

Sakinah, author

Abstrak

Tanaman Litsea telah banyak digunakan untuk pengobatan tradisional, akan tetapi penelitian terkait tanaman ini masih sangat jarang. Litsea oppositifolia Gibbs adalah salah satu tanaman marga Litsea yang masih sangat jarang penelitiannya. Penelitian sebelumnya menunjukkan bahwa ekstrak etanol batang Litsea oppositifolia Gibbs mengandung senyawa flavonoid serta memiliki aktivitas antioksidan yang berperan dalam penghambatan aktivitas elastase. Penelitian ini bertujuan untuk menentukan metode ekstraksi nonkonvensional yang optimal dan menganalisis potensi penghambatan aktivitas elastase pada ekstrak batang Litsea oppositifolia Gibbs. Pada penelitian ini, batang Litsea oppositifolia Gibbs diekstraksi menggunakan metode Ultrasound-Assisted Extraction (UAE) dan Microwave-Assisted Extraction (MAE) dengan pelarut etanol 70%. Masing-masing ekstrak dihitung kadar flavonoid totalnya menggunakan metode kolorimetri AlCl3. Ekstrak dengan kadar flavonoid tertinggi diuji penghambatan aktivitas elastase menggunakan enzim porcine pancreatic elastase dan substrat N-succinyl-(Ala)3-p-nitroanilide. Hasil menunjukkan bahwa rendemen ekstraksi tertinggi diperoleh pada metode MAE (4,7297 ± 0,2839%) dibandingkan UAE (3,6748 ± 0,2015%). Kadar flavonoid total tertinggi diperoleh pada metode UAE (2,39 ± 0,0287 mgEK/g ekstrak) dibandingkan MAE (1,69 ± 0,0101 mgEK/g ekstrak). Ekstrak etanol batang Litsea oppositifolia Gibbs menunjukkan persentase inhibisi yang rendah yaitu 11,78 ± 0,60% dan 15,63 ± 0,08% pada masing-masing konsentrasi 15 dan 60 µg/mL. Kesimpulan dari penelitian ini adalah metode ekstraksi nonkonvensional yang optimal adalah MAE serta ekstrak etanol batang Litsea oppositifolia Gibbs tidak memiliki penghambatan aktivitas elastase.

.....Litsea plants have been widely used for traditional medicine, but research related to this plant is still very rare. Litsea oppositifolia Gibbs is one of the Litsea genus that is still rarely researched. Previous studies have shown that the ethanol extract of Litsea oppositifolia Gibbs stem contains flavonoids and has antioxidant activity that plays a role in inhibiting elastase activity. This study aimed to discover optimal nonconventional extraction methods and investigate the potential inhibition of elastase activity in Litsea oppositifolia Gibbs stems. In this study, Litsea oppositifolia Gibbs stems were extracted using Ultrasound-Assisted Extraction (UAE) and Microwave-Assisted Extraction (MAE) methods with 70% ethanol as the solvent. Each extract's total flavonoid content was measured using AlCl3 colorimetric method. The extract with the highest flavonoid content was tested for elastase inhibition using porcine pancreatic elastase enzyme and N-succinyl-(Ala)3-p-nitroanilide substrate. The results showed that the highest extraction yield was obtained by the MAE method (4.7297 ± 0.2839%) compared to the UAE (3.6748 ± 0.2015%). The highest total flavonoid content was obtained in the UAE method (2.39 ± 0.0287 mgQE/g extract) compared to MAE (1.69 ± 0.0101 mgQE/g extract). The ethanol extract of Litsea oppositifolia Gibbs stem showed low percentage of inhibition, with values of 11.78 ± 0.60% and 15.63 ± 0.08% at concentrations of 15 and 60

μg/mL, respectively. The conclusions of this research are the optimal nonconventional extraction method is MAE and the ethanol extract of Litsea oppositifolia Gibbs stem does not show inhibition of elastase activity.