

ABSTRACT

IDENTIFICATION OF PHYTOCHEMICAL PROFILE, ANTIINFLAMMATION ACTIVITY OF COMBINATION OF BINAHONG (*Anredera cordifolia*) AND BAY (*Syzygium polyanthum*) LEAF EXTRACT: IN-VITRO STUDY

By

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Background: Binahong and bay leaf are known contain phenolic compounds, flavonoids, and tannins, which have potential anti-inflammatory. This study aimed to determine total phenolic, flavonoid, and tannin levels, as well as anti-inflammatory activity of combination 70% ethanol and ethyl acetate extracts binahong and bay leaf. **Methods:** Combination of 70% ethanol extract and ethyl acetate of binahong and bay leaf with a ratio 1:1; 1:2; 2:1; 2:0; and 0:2% w/w analyzed total phenolic (mg GAE/g) using Folin–Ciocalteu method, total flavonoids (mg QE/g) using $AlCl_3$ colorimetric method, total tannins (mg TAE/g) using gelatin precipitation method, and anti-inflammatory activity (IC_{50}) analyzed using Bovine Serum Albumin (BSA) protein denaturation method. Analysis group difference test data carried out using one-way ANOVA and correlation tests between total phenolic, flavonoid, tannin and anti-inflammatory activity levels using Pearson or Spearman. **Results:** Highest total phenolic of 70% ethanol extract and ethyl acetate in 0:2 combination (795.433 and 428.400 mg GAE/g). Highest flavonoid in 1:1 and 0:2 (348.2 and 487.6 mg QE/g), highest tannin in 1:2 (536.9 and 222.533 mg TAE/g). Strongest anti-inflammatory in 0:2 combination (15.546 and 27.37 μ g/mL). There were significant differences between combinations, in general correlation analysis showed negative relationship between phenolic, flavonoid, and tannin levels to anti-inflammatory activity, while flavonoid of ethyl acetate extract positively correlated. **Conclusion:** Combination binahong and bay leaf extracts had a negative correlation with total phenolic, flavonoid, and tannin to anti-inflammatory activity, while total flavonoid ethyl acetate extract positively correlated. Strongest anti-inflammatory effect found in 0:2 combination of 70% ethanol extract.

Keywords: anti-inflammatory, binahong leaf, bay leaf, extract, phenolics, flavonoids, tannins.

ABSTRAK

IDENTIFIKASI PROFIL FITOKIMIA, AKTIVITAS ANTIINFLAMASI KOMBINASI EKSTRAK DAUN BINAHONG (*Anredera cordifolia*) DAN DAUN SALAM (*Syzygium polyanthum*): STUDI *IN-VITRO*

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Latar Belakang: Daun binahong dan daun salam diketahui mengandung senyawa fenolik, flavonoid, dan tanin yang berpotensi sebagai antiinflamasi. Penelitian ini bertujuan menentukan kadar total fenolik, flavonoid, tanin, serta aktivitas antiinflamasi kombinasi ekstrak etanol 70% dan etil asetat daun binahong dan daun salam. **Metode:** Kombinasi ekstrak etanol 70% dan etil asetat daun binahong dan daun salam dengan perbandingan 1:1; 1:2; 2:1; 2:0; dan 0:2 % b/b dianalisis profil kadar total fenolik (mg GAE/g) menggunakan metode *Folin-Ciocalteu*, total flavonoid (mg QE/g) dengan metode kolorimetri $AlCl_3$, total tanin (mg TAE/g) dengan metode presipitasi gelatin, serta aktivitas antiinflamasi (IC_{50}) dianalisis dengan metode denaturasi protein *Bovine Serum Albumin* (BSA). Analisis data uji beda kelompok dilakukan dengan *one-way ANOVA* dan uji korelasi antara kadar total fenolik, flavonoid, tanin dan aktivitas antiinflamasi dengan *Pearson* atau *Spearman*. **Hasil:** Kadar total fenolik tertinggi ekstrak etanol 70% dan etil asetat pada kombinasi 0:2 (795,433 dan 428,400 mg GAE/g). Kadar flavonoid tertinggi pada 1:1 dan 0:2 (348,2 dan 487,6 mg QE/g), kadar tanin tertinggi pada 1:2 (536,9 dan 222,533 mg TAE/g). Antiinflamasi terkuat pada kombinasi 0:2 (15,546 dan 27,37 $\mu g/mL$). Terdapat perbedaan bermakna antar kombinasi, secara umum analisis korelasi menunjukkan hubungan negatif antara kadar fenolik, flavonoid, dan tanin terhadap aktivitas antiinflamasi, sedangkan kadar flavonoid ekstrak etil asetat berkorelasi positif. **Kesimpulan:** Kombinasi ekstrak daun binahong dan daun salam memiliki kadar total fenolik, flavonoid dan tanin serta berkorelasi negatif dengan aktivitas antiinflamasi, sedangkan total flavonoid ekstrak etil asetat berkorelasi positif. Antiinflamasi terkuat pada kombinasi 0:2 ekstrak etanol 70%.

Kata Kunci: antiinflamasi, daun binahong, daun salam, ekstrak, fenolik, flavonoid, tanin.