

INTISARI

Tumbuhan merupakan sumber senyawa bioaktif yang berpotensi sebagai obat. Salah satunya adalah Sukun (*Artocarpus altilis*), tanaman ini merupakan keluarga Moraceae dengan genus *Artocarpus*. Penelitian lain menyebutkan dalam *A. altilis* terkandung senyawa 2-geranil-2',3,4,4'-tertrahidroksi dihidrokalkon (2-GTDA) yang memiliki aktivitas antiplatelet dan terdapat senyawa golongan flavonoid lain juga memiliki aktivitas antioksidan. Tujuan penelitian ini adalah mengetahui distribusi keberadaan dan kadar senyawa 2-GTDA pada ekstrak etanol daun tanaman genus *Artocarpus* serta mengetahui aktivitas antioksidan dari ekstrak yang mengandung 2-GTDA.

Tanaman genus *Artocarpus* yang digunakan adalah sukun, kluwih, cempedak, nangka dan tarap. Serbuk daun diekstraksi secara maserasi dengan etanol 96% selama 24 jam dan remaserasi 24 jam. Ekstrak dianalisis untuk mengetahui distribusi senyawa 2-GTDA dengan KLT dilanjutkan KLT-densitometri (fase diam silika gel 60 F254, fase gerak *n*-heksan-etil asetat (2:1)). Penetapan kadar 2-GTDA pada ekstrak dilakukan secara semikuantitatif dengan KCKT (fase diam C18 dan fase gerak metanol-akuades (80:20)). Pengujian antioksidan menggunakan metode DPPH (2,2-diphenyl-1-picrylhydrazyl), ABTS (2,2'-azino-bis(3-ethylbenzothiazoline-6-sulphonic acid)) dan β -carotene Bleaching (BCB). Analisis statistik dilakukan dengan uji Kruskal-Wallis.

Hasil penelitian menunjukkan bahwa senyawa 2-GTDA hanya terdapat pada ekstrak etanol daun sukun dan kluwih baik muda, tua dan kuning. Kadar 2-GTDA pada ekstrak daun sukun muda, tua, dan kuning masing-masing sebesar $0,085 \pm 0,018$; $0,071 \pm 0,018$ dan $0,060 \pm 0,002$ %; sedangkan ekstrak daun kluwih masing-masing sebesar $0,083 \pm 0,000$; $0,081 \pm 0,001$ dan $0,074 \pm 0,025$. Aktivitas antioksidan (IC_{50}) ekstrak daun sukun muda, tua, dan kuning masing-masing sebesar $26,40 \pm 0,94$; $32,54 \pm 5,63$ dan $34,04 \pm 2,83$ μ g/mL (DPPH); $11,06 \pm 1,88$; $14,05 \pm 4,76$ dan $15,19 \pm 2,28$ μ g/mL (ABTS); dan sebesar 66,20; 57,60 dan 32,40% (konsentrasi ekstrak 13 μ g/mL) (BCB), sedangkan untuk kluwih $21,15 \pm 0,86$; $22,33 \pm 5,05$ dan $25,00 \pm 1,81$ μ g/mL (DPPH); $8,20 \pm 1,11$; $13,80 \pm 0,98$ dan $15,52 \pm 2,13$ μ g/mL (ABTS); serta 61,12; 54,25 dan 32,96% (konsentrasi ekstrak 13 μ g/mL) (BCB). Hasil uji Kruskal-Wallis menyatakan bahwa terdapat perbedaan aktivitas antioksidan yang signifikan antara pembandingan dengan ekstrak etanol baik pada metode DPPH maupun ABTS (sign < 0,05).

Kata kunci: *Artocarpus*, KCKT, 2-geranil-2',3,4,4'-tertrahidroksi dihidrokalkon, antioksidan

ABSTRACT

Plants are a source of bioactive compounds that have potential as drugs. One of them is breadfruit (*Artocarpus altilis*), this plant belongs to the Moraceae family with the genus *Artocarpus*. Another study stated that *A. altilis* contained a compound 2-geranil-2',3,4,4'-tertrahydroxy dihydrochalcone (2-GTDA) which had antiplatelet activity and other flavonoid compounds also had antioxidant activity. The purpose of this study was to determine the distribution of the presence and levels of 2-GTDA compounds in the ethanol extract of leaves of the genus *Artocarpus* and to determine the antioxidant activity of the extracts containing 2-GTDA.

Plants of the *Artocarpus* genus used are breadfruit, kluwih, cempedak, jackfruit and tarap. The leaf powder was macerated with ethanol 96% for 24 hours and remacerated for 24 hours. The extract was analyzed to determine the distribution of the 2-GTDA compound with TLC followed by TLC-densitometry (silica gel 60 F254 stationary phase, n-hexane-ethyl acetate (2: 1) mobile phase). Determination of 2-GTDA levels in the extract was carried out semiquantitatively with HPLC (C18 stationary phase and methanol-aquades (80:20) mobile phase). Antioxidant testing used DPPH (2,2-diphenyl-1-picrylhydrazyl), ABTS (2,2'-azino-bis (3-ethylbenzothiazoline-6-sulphonic acid)) and β -carotene bleaching (BCB) methods. Statistical analysis was performed using the Kruskal-Wallis test.

The results showed that the 2-GTDA compound was only found in the ethanol extract of the young, old and yellow breadfruit and kluwih leaves. Levels of 2-GTDA in the extracts of young, old, and yellow breadfruit leaves were 0.085 ± 0.018 ; 0.071 ± 0.018 and $0.060 \pm 0.002\%$; while the kluwih leaf extracts were 0.083 ± 0.000 respectively; 0.081 ± 0.001 and 0.074 ± 0.025 . The antioxidant activity (IC₅₀) of young, old, and yellow breadfruit leaf extracts were 26.40 ± 0.94 , respectively; 32.54 ± 5.63 and 34.04 ± 2.83 $\mu\text{g} / \text{mL}$ (DPPH); 11.06 ± 1.88 ; 14.05 ± 4.76 and 15.19 ± 2.28 $\mu\text{g} / \text{mL}$ (ABTS); and amounting to 66.20; 57.60 and 32.40% (extract concentration 13 $\mu\text{g} / \text{mL}$) (BCB), while for kluwih 21.15 ± 0.86 ; 22.33 ± 5.05 and 25.00 ± 1.81 $\mu\text{g} / \text{mL}$ (DPPH); 8.20 ± 1.11 ; 13.80 ± 0.98 and 15.52 ± 2.13 $\mu\text{g} / \text{mL}$ (ABTS); and 61.12; 54.25 and 32.96% (extract concentration 13 $\mu\text{g} / \text{mL}$) (BCB). The results of the Kruskal-Wallis test indicated that there was a significant difference in antioxidant activity between the comparators and the ethanol extract in both the DPPH and ABTS methods (sign <0.05).

Key words: *Artocarpus*, HPLC, 2-geranil-2',3,4,4'-tertrahydroxy dihydrochalcony, antioxidants