Isolasi dan penentuan struktur serta uji bioaktivitas senyawa kimia dari Daun Binahong Anredera cordifolia (Ten.) Steenis = Isolation, chemical structure elucidation and bioactivity test of the chemical compound of Binahong Leaves Anredera cordifolia (Ten.) Steenis

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Abstrak

Telah dilakukan penelitian isolasi dan identifikasi untuk mengungkapkan kandungan senyawa kimia dari daun tanaman Anredera cordifolia (Ten.) Steenis yang dikenal dengan nama binahong dan diperoleh dari perkebunan tanaman obat BALITTRO , Lembang. Sampel daun kering diekstraksi dengan metanol dan hasilnya difraksinasi dengan n-heksana, etil asetat dan n-butanol. Setiap fraksi dilakukan uji aktivitas, yang meliputi uji toksisitas terhadap larva udang A. salina Leach, antioksidan dengan metode DPPH, antimikroba serta uji sitotoksisitas terhadap sel leukemia murine P388 dan sel kanker payudara T-47D. Isolasi dilakukan dengan teknik kromatografi kolom, dilanjutkan dengan pemurnian menggunakan teknik kromatogafi lapis tipis preparatif dan HPLC preparatif. Penentuan struktur molekul dilakukan dengan menganalisis data spectrum UV-Vis, Infra merah, LC-MS, 1H-NMR, 13C-NMR, DEPT, 2D-NMR meliputi HMQC dan HMBC.

Hasil isolasi terhadap ekstrak daun A. cordifolia diperoleh 3 senyawa, yaitu satu senyawa yang diusulkan sebagai senyawa baru pada tanaman A.cordifolia yaitu 8-Glucopyranosyl-4',5,7-trihydroxyflavone, dan 2 senyawa lainnya yaitu senyawa adenine dan senyawa (9'Z,9''Z)-propane-1,2,3-triyl trioleat.

Berdasarkan hasil uji bioaktivitas BSLT, ekstrak metanol, n-heksana, etil asetat, n-butanol dan isolat 8-Glucopyranosyl-4',5,7-trihydroxyflavone toksik terhadap larva udang A. salina masing-masing mempunyai nilai LC50 46,19; 542,05; 32,06; 79,72 dan 24,74 g/mL. Hasil uji aktivitas antioksidan seluruh ekstrak bersifat aktif, kecuali ekstrak n-heksana tidak aktif, masing-masing dengan nilai IC50 53,11, 256,23 57,96 , 132,39 dan 68,07g/mL.

Hasil uji aktivitas antibakteri terhadap S. aureus, E.coli dan C. albicans, ekstrak n-heksana tidak memiliki daya hambat, ekstrak etil asetat lebih aktif dibandingkan dengan ekstrak metanol, dan n-butanol terhadap bakteri S.aureus, pada konsentrasi 500 mg/1mL. Ekstrak metanol daun A. cordifolia tidak mempunyai potensi aktif terhadap sel murine P388 dan T-47D, tetapi ekstrak etil asetat mepunyai potensi aktif terhadap sel murine P388 dengan IC50 62,74 g/mL. Senyawa 8-Glucopyranosyl-4',5,7-trihydroxyflavon, tidak aktif terhadap sel T-47D tetapi aktif terhadap sel P388 dengan nilai IC50 87,13 g/mL. Isolat adenine mempunyai potensi aktif terhadap sel murine P388 maupun sel kanker payudara T-47D dengan nilai IC50 89,08 dan 39 g/mL.

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A research has been conducted to reveal the isolation and identification of bioactive constituents of leaves Anredera cordifolia (Ten.) Steenis (local name known as binahong) and obtained from the plantation of medicinal plants in BALITTRO, Lembang. Dried leaf samples were extracted with methanol and the results were fractionated with n-hexane, ethyl acetate and n-buthanol respectively. It was tested biological activity ,to toxicity on Brine shrimp test of A.salina Leach, an antioxidant with the DPPH method, antimicrobial and cytotoxicity test against murine P388 leukemia cells and breast cancer cells T-47D. Isolation was carried out

by column chromatography techniques, followed by purification using preparative thin layer chromatography techniques and preparative HPLC. Determination of molecular structure performed by analyzing the UV-Vis spectrum data, Infrared, LC-MS, 1H-NMR, 13C-NMR, DEPT, 2D-NMR include HMQC and HMBC.

The results of isolation of the leaf extract of A.cordifolia were obtained three compounds, a compound that is proposed as a new compound in this plant that is 8-Glucopyranosyl-4?,5,7-trihydroxyflavone and two other compounds are adenine and (9?Z,?Z)-propane-1,2,3-tryl trioleat.

The results of bioactivity BSLT, methanol extract, n-hexane, ethyl acetate, n-buthanol and isolates 8-Glucopyranosyl-4?,5,7-trihydroxyflavone were toxic to shrimp larvae A.salina with LC50 values : 53,11; 256,23; 57,96; 132,39; and 68,07g/mL. The results antioxidant activity, all of extract active except for n-hexane fraction with IC50 values 53,11; 256,23; 57,96; 132,39 and 68,07 g/mL.

The results of the antibacterial activity against S.aureus, E.coli and C.albicans , n-hexane extracts had no inhibitory power, the ethyl acetate extract was more active than the methanol and n-buthanol extract against bacteria S.aureus at a concentration of 500 mg/1 mL. Methanol extract of leaves of A.cordifolia was not potentially active against murine P388 and T-47D cells, ethyl acetate extract was shown activity against murine P388 cells with IC50 values 62,74 g/mL. The compounds 8-Glucopyranosyl-4?,5,7-trihydroxyflavone, not active against T-47D cells but was active against P388 cells with IC50 values 87,13 g/mL. Isolate adenine was active against murine P388 cells and breast cancer cells T-47D with IC50values 89,08 and 39 g/mL, respectively.