Konstituen Kimia Tumbuhan Tingkat Rendah Plagiochila sandei Dozy dan Tumbuhan Tingkat Tinggi Beilschmiedia brevipes Ridl, B. glauca lee dan Cryptocarya kurzii Hk(f) serta Uji Sitotoksik dan Apoptosis Sel Alkaloid Aporfin dan Oxoaporfin pada Sel KB

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Abstrak

ABSTRAK
Telah dilakukan penelitian pada tumbuhan tingkat rendah Iumut hati P. sandei Dozy dan tumbuhan tinggi famili Lauraceae yaitu Beilschmiedia brevipes Ridl., B. glauca Lee dan Cryptocazya. kurzii Hk.f. Ekstraksi P. sandei Dozy dilakukan dengan cara maserasi dengan pelarut berturut-turut n-heksana, klorofom dan melanol, sedangkan ekstraksi pada tumbuhan tingkat tinggi famili Lauraoeae menggunakan ekstraksi asam basa untuk memperoleh alkaloid total. isolasi P. sandei Dozy dilakukan dengan kromatograti kolom menggunakan fasa diam silika gel, Sephadex LH-20 dan Cosmosil RP-75 serta eluen n-heksana-etilasetat, n-heksana-aseton dan kloroform-metanol, sedangkan isolasi alkaloid digunakan fasa diam silika gel dan eluen diklorometana-metanol. Penentuan struktur molekul dilakukan dengan UV, FTIR, 1H-NMR, 13C-NMR, NMR-2D, ESI-MS, FAB-MS, GC-MS dan HR-MS. Dari hasil tumbuhan tingkat rendah P. sandei Dozy diperoleh 6 senyawa yaitu 2 seskuiterpen, spathulenol (A-1) dan 10-oksodaucan-5,8-dien-11-asetat (A-3) yang merupakan senyawa baru, 2 macam sterol yaitu stigmasterol (A-2) dan silosterol (A-4), turunan gliseroi 1',2'-[(3~etoksi)-heksa vinill gliserol (A-5) juga merupakan senyawa baru dan etil p-metoksi sinamat (A-6), sedangkan dari tumhuhan tinggi famili Lauraceae diperoleh 7 alkaloid bensilisokuinolin dari B. bravipes Ridl., yaltu 7-O,4'-O-dimetilooclaurin (B-1), papaveraldin (B-2), velucriptin (B-3), papaverine (B-4) adalah bahan alam baru, amepavin (B-5), 4-metilpapaveraldin (B-6) merupakan senyawa baru dan noramepavin (B-7). Enam alkaloid aporfin yaitu norisoturberin (C-1), norisocoridin (C-2), N-metilhemagin (C-3), isocoridin (C-4), hemagin (C-6), catalpivolin (C-7) dm 1 oksoaporin, 7-oksohemagin (C-5) 'dari B. glauca Lee dan 4 alkaloid oksoaportin, O-metilmoschatolin (D-1), subseilin (D-2), aiherolin (D-3), dioentrinon (D-4) dan sinamida (D-5) dar! C. Rum? Hk.f. UE aktivitas sitotoksik alkaloid disentxinon pada se! KB menunjukkan harga LCm 9,03 ppm, sedangkan pada konsentrasf 10 ppm disentrinon dapat menginduksi apoptosis sebesar 46,30%, dan menyebabkan nekrosis 20,28%. Disentrinon menginduksi apoptosis jauh lebih tinggi dmanding dengan aportin aiau oksoeporfin Iain, tetapi sedikit Iebih rendah daripada vinkristin sebagai kontrol positif.
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Abstract
The research of the isolation and structure determination of the chemical constituents of the liveiwort of Plagiochila sandei Dozy and Lauraceae, namely Beilschimedia brevrpes Ridl., Beilschmiedia giauca Lee and Cryptocarya kurzii Hk.f. have been performed . The extraction of P. sandei was carried out using n-hexane, CHCI3 and MeOH, subsequently, while for the Lauraceae the acid base extraction was periomied to get the crude alkaloid extracts. P.sandei Dozy was

purified by column chromatography using silica gel, Sephadex LH-20 dan Cosmosil RP-75 as stationary phase and n-hexane-ethyl-acetate, n-hexane-acetone and chloroform-methanol as mobile phase, respectively. The crude alkaloids mixture was subjected to column chromatography over silica get and dichloromethane - methanol as mobile phase. The molecular structure ofthe compounds were determined by spectroscopic methods, such as UV, FTIR, 1H-NMR, 13C-NMR, NMR-2D, ESI-MS, FAB-MS, GC-MS and HR-MS. From the liverwort P. sandei Dozy, 6 compounds as chemical constituents of were obtained: 2 sesquiterpenes, spathulenol (A-1) and 10 oxodaucane-5,8-dlene-11-acetate (A-3) as a new compound, 2 sterols: stigmasterol (A-2) and sitosterol (A-4), 1',2?-dimethyl-[(3~ethoxy)-hexavinyl] glycerol. a new compound of a derivative of glycerol (A-5) and ediyl p-melhoxy cinnnamate (A-6). Nineteen alkaloids were isolated from Lauraoeae, 7 benzylisoquinoiinei from B.brevipes Ridl.: 7-O,4'-O-dimethylcoclaurine (B-1), papaveraldine (B-2), veluoryptine (B-3), papaverinol (B-4) as new natural product compound, armepavine (35). 4-methyipapaveraldine (B-6) as new compound and noramrepavine (B-7). Six aporphine alkaloids were obtained: norisoturberine (C-1), norisocorydine (C-2), N-methylhemagine(C-3), isocorydine (C-4). hemagine (C-6), catalpivoline (C-7) and one oxoaporphine called 7-oxohemagine (C-5). Four oxoaporphine alkaloids were isolated from B. glauca Lee: 0#methyimoschatoline (D-1), subsessiline (D-2), atheroline (D-3), dicentrinone (D-4) and a 'proto' alkaloid cinamide (D-5) from C. kurzii Hk.f. The cytotoxic activity test of the aporphine and oxoaporphine alkaloids to the KB cell line showed that dicentrinone - an oxoaporphine had LC50 9,03 ppm, while at 10 ppm, dicentlinone induced apoptosis 46.30% and 20,28% necrosis. This activity was much higher than aporphines and other oxoaporphlnes, but it was slightly lower than vincristine as positive control.