Antiparasitic compounds from Cupania cinerea with activities against Plasmodium falciparum and Trypanosoma brucei rhodesiense

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Author(s) Gachet, M. S.; Kunert, O.; Kaiser, M.; Brun, R.; Zehl, M.; Keller, W.; Munoz, R. A.; Bauer, R.; Schuehly, W.
Author(s) at UniBasel Kaiser, Marcel ; Brun, Reto ;
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In a survey of plants from Ecuador with antiprotozoal activity, Cupania cinerea was found to show significant in vitro activity against the Plasmodium falciparum K1 strain and Trypanosoma brucei rhodesiense. Subsequently, activity-guided isolation of the n-hexane and dichloromethane extracts from the bark of C. cinerea afforded two diterpene glycosides (1 and 2), named cupacinoside and 6'-de-O-acetylcupacinoside, and a lactonized triterpene bearing an oxepin moiety named cupacinoxepin (3), together with the known compounds scopoletin (4), caryophyllene oxide (5), two bisabolane sesquiterpenes (6 and 7), lichexanthone (8), gustastatin (9), lupenone (10), betulone (11), 17beta,21beta-epoxyhopan-3-one (12), taraxerol (13), and taraxerone (14). For compound 3, X-ray crystallography was employed to elucidate the relative configuration. For cupacinosides (1) and (2) and cupacinoxepin (3), in vitro activities against the P. falciparum K1 strain (IC(50)1, 1.3; 2, 1.8; and 3, 8.7 muM) and T. b. rhodesiense (IC(50)1, 4.5; 2, 15.8; and 3, 71.6 muM) were found. Cytotoxicity toward L-6 cells is discussed for all the compounds isolated.
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