Antiprotozoal Isoflavan Quinones from Abrus precatorius ssp. africanus

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Author(s) Hata, Yoshie; Raith, Melanie; Ebrahimi, Samad Nejad; Zimmermann, Stefanie; Mokoka, Tsholofelo; Naidoo, Dashnie; Fouche, Gerda; Maharaj, Vinesh; Kaiser, Marcel; Brun, Reto; Hamburger, Matthias
Author(s) at UniBasel Hamburger, Matthias ; Hata Uribe, Yoshie Adriana ; Raith, Melanie ; Zimmermann, Stefanie ; Kaiser, Marcel ; Brun, Reto ; Ebrahimi, Samad ;
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A library of 206 extracts from selected South African plants was screened in vitro against a panel of protozoan p arasites, Plasmodium falciparum, Trypanosoma brucei rhodesiense, and Leishmania donovani. A CH2Cl2/MeOH (1 : 1) extract of Abrus precatorius L. ssp. africanus strongly inhibited P. falciparum (98 %), T. b. rhodesiense (100 %), and L . donovani (76 %) when tested at a concentration of 10.0 m icrog/mL. The active constituents were tracked by HPLC-based activity profiling and isolated by preparative and semi preparative RP-HPLC chromatography. Structures were established by HR-ESIMS, and 1D and 2D NMR (1H, 13C, COSY, HMBC, HSQC, and NOE difference spectroscopy). Five compounds were obtained and identified as two isoflavan hydroquinones, abruquinone H (1) and abruquinone G (2), and three isofla van quinones, abruquinone I (3), abruquinone B (4), and 7, 8,3”5’-tetramethoxyisoflavan-1’,4’-quinone (5). Compounds 1 and 3 were new natural products. The absolute configuration of compounds was determined by comparison of electronic circular dichroism spectra with calculated ECD data. Compounds 3 and 4 showed strong activity against T. b. rhodesiense (IC50 values of 0.30 and 0.16 microM, respectively) and good selectivity (selectivity indices of 73.7 and 50.5, respectively)
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