Unusual derivatives from Hypericum scabrum

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4652584
Author(s) Soroury, S.; Alilou, M.; Gelbrich, T.; Tabefam, M.; Danton, O.; Ebrahimi, S. N.; Kaiser, M.; Hamburger, M.; Stuppner, H.; Moridi Farimani, M.
Author(s) at UniBasel Kaiser, Marcel ; Hamburger, Matthias ; Danton, Ombeline Réjane ;
Year 2020
Title Unusual derivatives from Hypericum scabrum
Journal Scientific Reports
Volume 10
Number 1
Pages / **Article-Number** 22181
Mesh terms Antiprotozoal Agents, pharmacology; Biological Products, pharmacology; Biosynthetic Pathways; Hypericum, chemistry; Magnetic Resonance Spectroscopy; Models, Molecular; Molecular Structure; Plant Extracts, pharmacology; Structure-Activity Relationship
Three new compounds (1-3) with unusual skeletons were isolated from the n-hexane extract of the air-dried aerial parts of Hypericum scabrum. Compound 1 represents the first example of an esterified polycyclic polyprenylated acylphloroglucinol that features a unique tricyclo-[4.3.1.1(1,4)]-undecane skeleton. Compound 2 is a fairly simple MPAP, but with an unexpected cycloheptane ring decorated with prenyl substituents, and compound 3 has an unusual 5,5-spiroketal lactone core. Their structures were determined by extensive spectroscopic and spectrometric techniques (1D and 2D NMR, HRESI-TOFMS). Absolute configurations were established by ECD calculations, and the absolute structure of 2 was confirmed by a single crystal determination. Plausible biogenetic pathways of compounds 1-3 were also proposed. The in vitro antiprotozoal activity of the compounds against Trypanosoma brucei rhodesiense and Plasmodium falciparum and cytotoxicity against rat myoblast (L6) cells were determined. Compound 1 showed a moderate activity against T. brucei and P. falciparum, with IC50 values of 3.07 and 2.25 muM, respectively.
Publisher Nature Publishing Group
ISSN/ISBN 2045-2322
URL https://doi.org/10.1038/s41598-020-79305-y
edoc-URL https://edoc.unibas.ch/91233/
Full Text on edoc Available;
Digital Object Identifier DOI 10.1038/s41598-020-79305-y
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/33446755
ISI-Number WOS:000608478600001
Document type (ISI) Journal Article