Abstract:

Chromatographic separation of the roots of a Kenyan medicinal plant, Clerodendrum eriophyllum, led to the isolation of ten abietane diterpenoids (1-10), one of which (1) was isolated for the first time from a natural source. Using spectroscopic data, the structure of 1 was determined to be 12-hydroxy-8,12-abietadiene-3,11,14-trione. Circular dichroism (CD) spectra showed that the stereochemistry of compounds 1, 3, and 6-8 belongs to the normal series of abietane diterpenes, which confirmed the absolute stereochemistry of the isolated compounds. Compounds 1-10 were evaluated for their in vitro antiplasmodial, antileishmanial, antifungal and antibacterial activities. Compounds 3 and 7 exhibited potent antifungal activity (IC50/MIC 0.58/1.25 and 0.96/2.5 microg/mL, respectively) against C. neoformans, whereas 3, 6 and 7 showed strong antibacterial activity against Staphylococcus aureus and methicillin-resistant S. aureus with IC50/MIC values between 1.33-1.75/2.5-5 and 0.96-1.56/2.5 microg/mL, respectively. In addition, compounds 3 and 9 exhibited potent antileishmanial activity (IC50 0.08 and 0.20 microg/mL, respectively) against L. donovani, while 3 and 7 displayed weak antimalarial activity against Plasmodium falciparum, but 9 was inactive.